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**Software file:**  
**LIGHTNING**  
**SPECIAL**  
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- **DTP Forum**
- **Text<sup>87</sup> V3**
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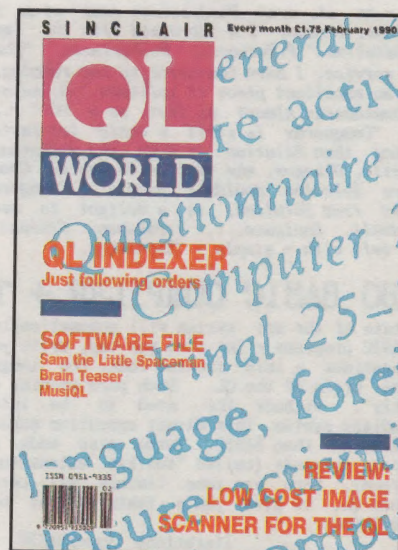
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**NEXT  
MONTH**

**SOFTWARE FILE: HOME BUDGET**  
Money matters from PDQL.



## PC CONQUEROR WITH MS-DOS PC CONQUEROR

Terrific though we know the QL to be, we do feel the pressure to be "PC compatible" in today's world. There is increasing demand to be able to bring home and run the programs we use at work (or the other way around!), and to have access to the vast storehouse of PC software: word processors, databases, spreadsheets, expert systems, accounts and financial modelling packages, vertical market applications, visualisation aids, graphics/CAD/PCB designers, languages/compilers, operating systems, environments, utilities, adventures - you name it, there are scores of each type readily available for the PC. And thousands of shareware/PP programs too, most for the cost of a blank disk plus postage.

If you buy PC Conqueror, you will be able to run these programs! To boot up PC Conqueror takes 10 seconds from the F1/F2 prompt: thereafter, your QL is a HIGHLY compatible PC clone (indeed, more compatible than some "real" PCs). Conqueror is all-software. There is no comparison in quality between Conqueror and its predecessor: Conqueror has ALL the features of Solution (read the details later in this ad if you are unfamiliar with Solution's legion facilities), but is almost TWICE as fast: this has come about by our careful rewriting and optimising of Solution's code. As if the colossal speedup was not "enough", Conqueror (unlike Solution) runs perfectly even with PC software that makes various "non-legal" calls to the PC operating system. Conqueror runs with virtually anything that will run on a PC: QL Worlds from December 1989 to March 1990 listed several hundred PC programs/utilities found to work with Conqueror. It is simpler to say that we have yet to find a program that runs fine on a standard PC that doesn't run with Conqueror: we are aware, however, of programs that will run with Conqueror but won't run on some PCs!

Because in Conqueror we've cracked the problem of detecting when the PC screen has been changed, we need not slavishly update the screen many times a second (taking precious time away from the main PC-emulation job) as did Solution. Instead, we update the screen instantly it needs to be updated. This simple to understand but very hard to implement modification gives Conqueror additional (over and above what we've already discussed), "tunable" acceleration, as well as absolutely smooth echoing of keyboard input to screen (Solution could be a bit jerky when you typed quickly).

Conqueror's new features include a more flexible configurator and a better diagnostic and supervisor option, an enlarged manual (Conqueror itself is more compact!) with a troubleshooting chart, and a new mode of operation (in addition to the "normal" one of reading/writing PC disks directly) which allows you to create mini PC environments - you select the size, location and name - on any QL device (including floppy, ramdisk, hard disk and even mdv) which look like files from QDOS (and can therefore be copied with SuperBASIC's COPY!) but are indistinguishable from PC drives from within MS-DOS...

If you do not have legal access to a copy of MS-DOS, you need to buy MS-DOS too - but we sell it (with GW-BASIC, Shell and all the system utilities thrown in) at about half the normal price.

Of course QLs are better than PCs - but QLs that are PCs as well are better still. We will leave the last word to people who have already bought Conqueror. All these sentiments are unsolicited.

"I wish to congratulate you on the excellent work you have done on Conqueror. The improvements in performance over Solution are astounding. Well done!" B.C. Papagailj, Netherlands. "I am highly delighted with this new emulator. (Apart from the speed-up) it also appears to be more tolerant." L. Chandler, Peterborough. "Congratulations on bringing such a fast PC emulator into the world - on it, even Wordperfect runs at a reasonable speed." R. Williams, London. "I'm impressed with the improvement in speed over Solution." P. Vervoort, Netherlands. "Thank you for your prompt service. I have Conqueror up and running, and congratulate you on an excellent piece of software." G. Leagas, Hartlepool. "On some benchmarks almost as fast as a PC." P. Johnson, Stoke on Trent. "Conqueror is still a whole lot faster (even) without Lightning than Solution is with the assistance of Lightning." P. Christie, Glasgow, who went on to praise Conqueror for running software Solution couldn't handle. "Conqueror, to which I upgraded from Solution, is a delight to use by comparison!" B. Gouldwell, Dunipace.... V. Pakanen, Finland sums it all up rather well with - simply - "Excellent."

## TURBO BASIC COMPILER + TOOLKIT

This state of the art system will automatically convert ordinary SuperBASIC programs - the sort you buy, write yourself or type-in from magazines - into machine code, the language of the 68008 CPU, the brain of the QL. Such pure machine code programs run "directly", without the need to be interpreted by any intermediary system. This direct execution makes them MUCH faster in execution than BASIC. Turbo also adds a host of useful high-speed commands (called "toolkit extensions" if you are fond of jargon). Here are some timings, all carried out on a JS Trumpcard QL, to give you a taste of just how much Turbo can improve things:

	Iterations	SuperBASIC	Turbo'd	Speedup
Empty FOR...END FOR Loop	30000	49 sec	1.3 sec	38x
Empty REPEAT Integer Loop	30000	151 sec	2.4 sec	63x
String concatenation	3000	448 sec	0.4 sec	110x
Search through memory	300000	1410 sec	1.5 sec	900x

Turbo's automatic conversion process, called compilation, is as simple as this: (1) Boot up with the Turbo disk (2) Load in or

type in your BASIC program (3) Enter the word CHARGE, and watch the friendly front-end menu pop into view (4) Choose a filename for the machine code task that is to be generated and (5) Press the SPACE bar. Turbo does the rest! Compilation is a one-off process, and is very fast too - it takes little more time than LOADING the original program did! Once compilation is finished, you have a machine code version of the original program. Start this with EXEC, just as you used to invoke the original program with LRUN: besides the tremendous difference in running speed, you will notice that the program loading time is cut down to a few seconds at most (big SuperBASIC programs can take half an hour or more to load). The EXEC mechanism also allows you to multitask programs, something impossible with SuperBASIC, as well as manipulate their time-priorities, link them together, exchange data and even share parts of their code while executing. If you are an advanced user, Turbo's numerous fine-tuning facilities, 200-command toolkit (a terrific complement to the famous Supertoolkit) and 300+ page manual will be irresistible. If you are a beginner, you will wonder how you ever did without Turbo's program diagnoses and auto-correction. Turbo is more than a very clever optimising compiler. Turbo is magic. If you do not have it, you can have no conception of the experience you are missing and the power you are forfeiting.

## PROFESSIONAL PUBLISHER

(contd) cursor keys and SPACE bar, or by pressing a digit key. There is context sensitive, on-screen help too. When you get more experienced with the program, you may select Command mode (using the Enter key) and choose operations directly, bypassing the menu system. PP is more user-friendly than any page-making program we have ever seen on any computer, period.

Let us talk you through how you might choose to produce a page or succession of pages. This is just one way you might proceed: PP does not impose any sequence of steps upon you, and you can omit certain operations altogether. You will have pre-configured PP to boot up with a generous lot of fonts (you select which ones you are likely to want - of course you can load in additional ones, or discard existing ones, at run-time too). You could then set the required page dimensions and orientation, as well as not-necessarily-symmetric margin, grid, gutter, column and navigation-guide positions (yes, half the PP manual is a glossary) - you could have pre-configured PP for these too, or loaded in alternative layouts (layouts are distinct from page contents) you've created in previous sessions. If you don't set layout we'll use the default, or the one used for the previous page. Now you would plan the page in detail. Laying out graphics (if any) comes next - you can create these in PP itself, with its superb rubber-banding, dozens of brushes, palettes, texture-fills and so on. Alternatively, you can load in screens created elsewhere, including Eye-Q, Easel, any other graphics programs or digitiser, into a cut and paste buffer where a dozen tricks (including resizing, slanting, scrolling and texturing) are available, and then take the finished product onto the page. This done, you might insert headlines or captions, selecting from the dozens of fonts available. Each font can be manipulated in billions of ways (yes, we mean thousands of millions): to give but two examples, you have a choice of 32 slopes for italics for the font, and dozens of aspect ratios are selectable. Now you might opt to get the main body or bodies of text down on the page. As fonts are defined to great accuracy (upto 2304 pixels PER CHARACTER!) jaggedness is a thing of the past, and visually the choice of fonts can only be described as stunning! You can do this either by directly typing it into cursor-dragged boxes (with all the options you would expect from a dtp system, and a few more besides), or by loading it in from file created by Quill, Editor or other word-processor. The latter method is the one we prefer (because you retain the text as a character stream rather than as pixels when you save the file). Highlights such as bold, underline etc which you may have inserted into the text are preserved. Indeed, you can control PP's operation from within the text file itself. If you are an advanced user, you can even teach PP your own mnemonics, so that it switches between different styles and modes as it encounters instructions you put into your text file when you created it! The imported text file



is editable within PP. It is up to you to decide where the text is to lie - PP places no restrictions on either the number or the shape of the windows into which the text is to flow: they need not be rectangular, and can have any irregular border, and can even overlap or be contained one inside another! You can freehand-draw (there's excellent rubber-banding to help you) the window borders as you choose, to get any effect you desire, to fill any space you wish and to avoid any existing material already on the page (or to reserve room for new material). Amazingly, within the window the text will all be perfectly micro-justified in the font(s) of your choice, however bent or contorted you made the border. Text will flow automatically from one window to the next either until you have run out of text or out of windows. There are many text formatting facilities: you can select word-wrapped, force-broken or hyphenated, and you can specify minimum numbers of "pre-hyphen" and "post-hyphen" characters so that absurd hyphenations are avoided (if no sensible hyphenation position can be found the word is wrapped instead). There are so many fine-tuning controls here that the rest of this ad could be devoted to describing them and would still leave things out! We will have to content ourselves with but one example: with micro-justification (pixel by pixel spacing, not crude character by character stuff) we even allow you to specify what % of padding space is to be allocated between characters and how much between words! Text work completed, you can then put in the final touches by adding borders, shadows, patterns or designs, overwriting or slipping under or combining these with existing material, repositioning parts of the page if necessary. The end result - be it for a letter, letterhead, document, manual, article, newsletter, magazine, book, thesis, ad - is far better than you have any right to expect from a piece of software costing under £2,500, let alone under £100...

## SOLUTION WITH MS-DOS SOLUTION

This program transforms your QL into a pretty compatible - albeit not fast - PC clone. **Solution** will run over 95% of the "big name" PC software you have read about, missing out only on programs that make illegal use of the PC's operating system. **Solution** works solely from software so you don't have to worry about ripping your QL to pieces to fit anything, or have anything hanging out of the back. Just boot up the **Solution** disk and you will be using a PC, which will then ask for a copy of MS-DOS (just as it would if you were using a "real" PC). End of story - you are now using a PC. There are very few restrictions: both mono and colour CGA graphics are supported. 479K is available for PC software on a 640K machine and 667K when using Trumpcard - more than you will get on a PC or XT! Speed can be increased by using **Lightning Special Edition** and/or **Minerva** (but just can't compare with **Conqueror's** speed). Because your newly acquired PC is really a QL you can multitask two or three PC programs (try doing that on a "real" PC!). You can also run QL programs alongside PC programs (DON'T try that on a "real" PC!). Converting files (in either direction) between QL and MS-DOS is no problem and you can re-configure the QL keyboard if you wish.

## PROFESSIONAL ASTROLOGER PROFESSIONAL ASTRONOMER

Our use of the term "Professional" in the name of an application program does mean that the quality achieved will meet or surpass the highest professional standards for that application. The term does NOT mean that you have to have the knowledge of a professional in order to get the best out of the programs. **Astrologer** teaches you astrology from scratch, and enables you to produce reams (if you are short of paper, you can choose exactly how much) of narrative printout giving a person's horoscope, personality delineation, year-to-year life overview, detailed day-to-day (in fact, minute-to-minute!) predictions, as well as two-person compatibility interpretations. Also provides all the technical readouts, charts and zodiacal wheels you would expect. It is extraordinarily fast (there is a great deal of very clever maths within it) and it performs the whole computation in under a second. The author of the manual is the author of this advert, so you can expect a lucid and humorous read! Whether or not you believe in astrology - indeed, especially if you do not - this program is one that you cannot afford not to have. Scores of detailed readouts for famous people are supplied, incidentally - very interesting reading they make too... Discover Mrs Thatcher's secret yearnings, explore yourself, play the Stock Exchange... **Astronomer** is an extremely efficient solar system computer, with planetary views, planet faces (with shadows/eclipses), five different co-ordinate systems, 1sec-1day cinerama, etc. **Astrologer + Astronomer** is supplied at a very low combined price.

## LIGHTNING SPECIAL EDITION LIGHTNING

Until the autumn of 1989 the fastest way of speeding up your QL display was to buy **Lightning**, which greatly accelerated QL text printing, graphics and maths, without affecting compatibility at all. NOW you can buy **Lightning Special Edition**, which is significantly faster than **Lightning** and does a lot more! **Lightning Special Edition** is simplicity itself to use. Once it is loaded ALL programs will AUTOMATICALLY benefit from the

enhancements it provides. If you are using a QL without **Lightning** you are probably a little pale (quote from John Norton of Sector Software), you should get out and about more... Go to some QL shows or meetings where you will see **Lightning** in action - or take our word for it. If you don't have **Lightning** you are WRONG. **Lightning Special Edition** works by automatically (I know we keep using the word, but it is the only one that is really correct here) and instantly replacing QL ROM code (or **Minerva** code, for that matter - **Minerva** and **Lightning** complement each other superbly) that has usually been optimised for space, with extremely high speed routines written by us that do the same job but much faster. Screen output speed gets accelerated by factors from over 1.5x to over 10x (about 2x-4x is representative), graphics are drawn twice as fast (points are plotted 5 times faster) and internal maths is speeded up by 2x-5x (you can even vary the precision). There is virtually no cost in RAM (for example, you can still run **Quill** with a fairly large document on an unexpanded QL with **Lightning Special Edition**). The **Special Edition** is supplied on EPROM plus disk/cartridge: if you already have something precious plugged into the QL's EPROM socket (at the rear), there is no problem - all the EPROM's functionality is duplicated on the other medium! **Lightning Special Edition** provides more than acceleration - you can dynamically adjust channel parameters - like ink, paper, font, screen position, use over 80 fonts, a null device, a character drain and all sorts of other interesting gadgets. **Lightning Special Edition** installation has been totally automated, and will not present you with complications no matter how computer-naïve you are.

If you cannot afford the **Special Edition**, get **Lightning**. Refer to its review in September 1988 QL World to see how effectively **Lightning** acquitted itself.

Both of these programs transform the QL into an altogether more zippy, business-like, efficient, enjoyable machine.

## DIGITAL C SPECIAL EDITION DIGITAL C COMPILER

Superb C compilers these - fast in execution, they produce extremely speedy and concise code. No-nonsense documentation is included. The **Special Edition** has many more features, including pointers, long pointers, structures, >64K code sizes, direct access to traps and vectored utilities, and is twice as fast because of its more efficient C/QDOS libraries.

## ACT SPECIAL EDITION

The **Adventure Creation Tool** is for every programmer or putative programmer. Whether or not you have any interest in adventures, you will find something useful here. Animated graphics, data compression, language design and parsing, maps, object-oriented control and much more, with an excellent educational manual too.

## 3-D PRECISION CAD SYSTEM

2-D and 3-D design and manipulation, at a speed sufficient to permit real-time animation! Whether or not your interest is serious, 3DP will change the way you look at the world around us. The variation of viewpoint, perspective and magnification is very smooth. In addition to dot-matrix output, plotters are catered for.

## SUCCESS CP/M EMULATOR

Run CP/M programs on your QL! What more is there to say, other than that after the PC family, no more common system exists than CP/M, with thousand of cheap programs... And **Success** is fast!

## THE EDITOR SPECIAL EDITION THE EDITOR

Not just a word processor - more a way of life. The **Editor Special Edition (SE)** is a powerful data management tool, whose simple-to-master user interface was the result of months of careful design. Absolute consistency of control and operation is its hallmark. To illustrate this, ALL **Editor** commands have exactly the same structure - verb, followed by a separator (any one of your choice) and one or more optional nouns (if more than one, separated by the same separator). For example, W stands for Write, so W/FLPI letter will write the current document to a file on flpi called letter. Simple! Because **Editor** - unlike its imitators - is device independent, if you wanted to print the document you would enter W/SER1 (or whatever) and if you wanted to scroll it on the SuperBASIC screen you would use W/SCR - the same verb (W) each time. Note that the document needn't be text only - **Editor** can handle non-ASCII code, data files - even Archive or Flashback files direct - programs, \_doc files, files imported from other computers, machine code etc. If you wanted to write only part of the document, you would first define a block using the verbs BS and BE (Block Start & Block End) with your cursor in the appropriate positions. You don't have to define the Start first, and you are not locked into any sub-menu system once you have defined one end of the block - you can interpose any number of other operations between the two definitions. Blocks needn't be in chunks of lines - columnar (making multicolumn work as easy as pie) - or character-to-character blocks are also allowed, Block Type being set with BT. Once the block is defined (you can choose whether or not it appears highlighted using BH)



you would use BW instead of W to write the block to the desired destination. Yes, you guessed, Block commands all begin with a 'B' - the other ones are BD, BM and BI (Delete, Move, Insert). As you've also guessed, cursor navigation with Editor is stunningly quick. Not only is there immediate (<0.04 sec) random access to any point in the document, but even line-by-line scrolling can be at rates of hundreds of lines per second. There is lazy screen handling, so as soon as you show impatience by tapping a key while Editor is doing something, Editor will reduce - and if you persist, suspend - screen updating to devote more resources to the job in hand. To go on: say you wanted to Exchange the first hundred occurrences of "or" to "/". The way to do this would be 100E.or./. - note that / would not be a sensible choice of separator as one of the nouns contained a '/', so we used '.' instead. Let us say you wanted to Find (searching Backwards from the current cursor position) the last occurrence of 'and': you could use FB.and. If you wished to Repeatedly exchange the 'and's for ampersands, you could use RP EB/and/& but this might be dangerous if you wanted to avoid words like thous&s! To get around this you could append a qualifier Q (query before doing anything) after the E (so the backwards exchange was EBQ or EQB). Better still, you could specify that the exchange target must be a Word (we've provided a sensible definition of a word, but you can modify this if you wish with the configurator) - RP EBW/and/& would accomplish this. Editor SE has 200+ commands but as you can see they are logical and consistent and hence very easy to learn. We would not dream of using anything but Editor for text input - all our manuals are written on Editor (when we've had the time, we've ported the output through Professional Publisher for super print quality). We will not bore you with a list of Editor's capabilities - whatever the job, whatever the printer, Editor can do it. Such are Editor's speeds of searching, moving, sorting and manipulating information that we use it as a card-index type database and a programming tool - we've never seen fax so quick! The advanced user may note that Editor's commands can themselves be stored in ASCII files and later executed, just like programs. So powerful is Editor, the first version of a high-level language translator from another reputable QL software producer was actually written as an Editor SE command file...

The SE version is the ultimate one (especially if your principal aim is word processing rather than other data handling): the standard version contains as many features as we could get to fit into an unexpanded QL. Both are extraordinarily fast. More than a word processor, Editor's a way of life.

## MEDIA MANAGER SPECIAL EDITION MEDIA MANAGER

MMSE is a joy to use. Whether something has gone wrong with a disk or tape ("Not found", "Not a valid Quill file", "Bad or changed medium", "Read/write failed" etc) or whether you want better control over your programs and data, MMSE should be to hand. Virtually any calamity can be recovered from automatically: all permutations (accidental deletion or part-overwriting, part-formatting, errors yielding: bad map but OK directory, bad directory but OK map, bad map and directory, OK map and directory but bad file sectors, unknown fault, power glitch corruption and so on) have been carefully thought through and catered for. If nothing is wrong, but you just want to explore and understand more about your system, you can potter to your heart's content, assisted by the clear and packed-with-facts manual. Dozens of different diagnostic printouts can be produced. The whole system is menu-driven, with context-sensitive, on-screen help for every option. The speedy Sector Editor is a positive delight: the collector file facilities, bulk recovery, auto-navigation, skipping through the medium in physical, file (if map), logical (if no map) or uncollected/logical (if destroyed map, and because of "chequered" history with lots of overwriting/deletions no one-step recovery available) sequences must all be experienced to be believed. MMSE is extremely simple to operate, and assumes no advance knowledge whatsoever.

Alternatively, if you wish to tidy up your disks or cartridges, MMSE allows you to change volume format names, sort directories into alphabetic, date or size order, analyse file contents and histories, change case of filenames, move data/programs to/from alien-format disks, introduce or break copy-protection systems (illegal use prohibited!), MMSE can and will deliver the goods. It is absolutely superb.

The standard Media Manager is much less powerful, and less easy to use. It is for those on a tight budget.

## SPECIAL DESKTOP PUBLISHER DESKTOP PUBLISHER

Both these WYSIWYG ("What You See Is What You Get") dtp systems are excellent in their own rights - it is only when you compare them with the stunning Professional Publisher that you become aware of their shortcomings. You won't get fonts as large or smooth as with PP, or wrap-around graphics, or as sophisticated a printer driver or text/graphics file import facility. You will get a very workmanlike tool, capable of producing output that the computer press described as fantastic and superb.... The standard edition is the ideal if you do not have a disk drive: if you do have one, go for the Special version, which correspondingly has more features including textures, large windows, better drawing and improved command entry. All upgrades are possible, and there is only a £10 penalty for doing it in two

stages. So if you simply cannot afford PP, one of this pair is certainly for you.

## SUPERFORTH COMPILER WITH REVERSI

Why not learn FORTH, the most logical computer language of all? This superb FORTH-83 compiler produces stand-alone multi-tasking code of speed comparable to C. SUPERFORTH source is even portable to other machines! The manual teaches you the language.

## IDIS SPECIAL EDITION IDIS

Machine code (from other people's programs, toolkits and the ROM) is unintelligible until you put it through IDIS, the intelligent disassembler. IDIS Special Edition automates everything it possibly can, and requires no human intervention. It even sorts out subroutines, replaces addresses with names, untangles data from code and so on. Standard IDIS contains as much as we could pack into an unexpanded machine, and is nearly as automatic. If you want to find out how computers work, buy one of these two!

## MICROBRIDGE

Never be short of a 4 for Bridge again. Superb tutor included, based on random hands dealt with lightning speed.

## EYE-Q

There is no way to describe Eye-Q except as the best graphics program for the QL. This master is now four years old, and we have never felt the need to change anything. Its use is characterised by absolute simplicity, speed and power - it has that indefinable precision "feel" that is just right. All the expected manipulations are provided. Whether your needs are technical drawing, labelling, design, illustration, freehand work, copying - or just having fun, Eye-Q will not disappoint. Of course it is menu driven with context-sensitive help. The system takes 5 minutes to master. The variable zoom and fill facilities, anti-fingerslip measures, cursor acceleration and so on make Eye-Q a classic in its own time.

## SUPERCARGE SPECIAL EDITION

If you have an unexpanded QL, or cannot afford Turbo, but want SuperBASIC programs to go faster, Supercharge is the answer. It has about half the speed of its big brother, is not as tolerant of badly-written programs, and lacks many of Turbo's features (like linking, program sizes >64K etc): nonetheless, it is the compiler about which we received over ONE HUNDRED happy letters from satisfied users all using the word "Excellent" to describe it - and hundreds more who used other equally complimentary terms. The only gripe was about the Lenslok copy-protection, long since removed by us. So now Supercharge is perfect!

## SUPER SPRITE GENERATOR

SSG moves things about the screen rapidly, at machine code speed, directly from simple SuperBASIC. 256 sprites (each with upto 16 frames for realistic motion), 256 speeds, 256 planes, collision detection and dozens of special effects. SSG is very Easy to use.

## SUPER ASTROLOGER

A cut-down version of the Professional Astrologer - smaller horoscopes and manual, no interpretations for forecasting or compatibility testing. Still a marvellous buy at the price!

## BETTER BASIC EXPERT SYSTEM

SuperBASIC is a super BASIC. If you want to improve your programs automatically, and learn as you do this, get Better Basic.

## FONT ENLARGER

For Professional Publishers users - loads of large fonts are automatically created by this multitasking utility, as and when you need them (or in advance), by enlarging existing smaller fonts from PP itself, Lightning Special Edition and hordes of other sources. The difference is there is NO jaggedness at all.

## ULTRAPRINT

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(18)	IDIS SPECIAL EDITION	34.95	dT
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(22)	THE EDITOR	29.95	at
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We are currently reviewing our mailing list to ensure that we can keep in touch with all our customers in the future. If you have never contacted us giving your address, or have contacted us in the past but since moved house, and you have no order to place with us now, it is important for both of us that you post or phone us your name and address.

As an incentive, we will include your details in a completely free special PRIZE DRAW which will take place on each of the first eight Saturdays after the release of the April 1990 SQLW. Eight weeks gives our foreign friends - who are most welcome - plenty of time. The sooner you register with us, the better - your details will be left in the draw system, so if you register right away, you will get eight chances to win a prize (or prizes)! Prizes comprise thirty items of non-Digital Precision QL S-STAR software and hardware, and CDs, tapes and VHS videos - total worth over a thousand pounds. Winners will receive their prizes automatically within a week of each draw.

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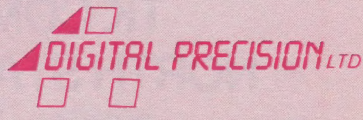
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Other QL titles available - phone for details -

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## Lightning Strikes Right, Says Digital

Digital Precision has received a number of queries from QL owners about whether there were separate versions of *Lightning Special Edition* required for use with *Minerva*, several C programs and updates to QRAM. The answer to the queries is that the one version of *Lightning Special Edition* works with everything.

DP would like to make it clear that its screen accelerator program, *Lightning Special Edition*, roots-up rewrite of the successful DP program *Lightning*, has never had compatibility difficulties. No modifications have been needed to make *Lightning Special Edition* run with non-standard QL systems. "Lightning Special Edition and its predecessor

*Lightning* were built right the first time," insists their author, Steve Sutton. "It was as simple as that."

Digital Precision calls *Lightning Special Edition* "very tolerant." It was produced in close co-operation with Tony Tebby of QJump, Jonathan Oakley — now of QView — Hellmuth Stuvén, David Oliver and Graham Priestley at Dansoft/CST Thor, Charles Dillon, David Batty and others. It works in the Basic and C environments and with Qdos, *Minerva*, QRAM, QPTR, Thor DOS, Thor XVI-DOS, Ice, ST/QL EMulator and all makes of disc interface, hard disc RAM expansion and toolkit.

Digital Precision has released a font enlarger to go

with *Professional Publisher*. Fonts can be created automatically and enlarged to a maximum size of 48 × 54 pixels per character — or over 40K for the font. A range of other sizes is possible; any standard QL font, seven of which are supplied with *Lightning Special Edition*, can be converted into a high-definition font in five sizes.

The special factor about this program, Digital Precision told *QL World*, is that it avoids the jaggedness and fuzz "mere trivial magnification" would produce in an enlarged font. Using

complex AI routines, *Deluxe Font Enlarger* smooths the fonts without intervention from the user. With this and other features, the program costs £19.95 from Digital Precision, 222 The Avenue, London E4 9SE. Tel: 01-527 5493.

DP also has in its possession a dictionary of more than 150,000 words — about five times larger than other QL dictionaries — and still growing. "We have seen dictionaries for the QL which work out at about two or three pence a word. We would have to charge about £4,000 a copy for ours. Somehow, we do not think that we will be charging so much," says DP cheerfully.

The dictionary is not yet available and DP will say only that "it is rumoured to be part of a very significant future release."

## Fair Progress

## Metal Exchange Extra

Andrew Thompson, author of the short program *Metal Exchange*, which appeared in *The Progs* in the January, 1990 issue, has contacted *QL World* to say that *Metal Exchange* is part of a much larger game, developed originally for use in schools, and that he is willing to supply the game to any reader.

The complete program costs £3 accompanied by a formatted medium — microcassette or 3.5in. double-sided disc — and a stamped, self-addressed envelope. Orders or enquiries to Andrew Thomson, 22 Myddleton Square, London EC1R 1YE.

Another game, wonderfully titled *Duck Bodgers in Sherwood Forest*, is being developed.

The first All Formats Computer Fair held at the New Horticultural Halls in London was well attended by bargain hunters.

QL users wondering in vain when there would be another ZX Microfair at the Halls were pleased to pay £3 to find that the QL was well represented by dealers which regard the All Formats show as the natural successor to the London Microfair.

Organiser Bruce Everiss, who describes the Fair as "like a car boot sale without the

cars", has four more shows planned at the venue for 1990.

The next All Formats Computer Fair will be held at the New Horticultural Halls, Elverton Street, London SW1 on April 28th and 29th from 10am to 5pm.

The QL is expected to be strongly represented, with Digital Precision and Miracle Systems both attending, together with other suppliers. The New Horticultural Halls is a short walk from London's Victoria main line and Underground stations.

## "Painter" up-date

Brothers Joachim and Nathan Van der Auwera have announced that *The Painter* has been further updated as of January and that they are no longer supporting Schoen PCP

as a distributor of the program.

The Van de Auweras state that Schoen has only an old version of *The Painter* and will not be receiving updates. Customers who bought the pack-

age from Schoen can contact the Van de Auweras directly, or Jochen Merz, to receive information about upgrading.

Changes to the new version, V3, 02, include a new command PAINT SCR, to paint with the screen as infill-colour. The 'paint bug' has been fixed and the program now works

correctly with the ST/QL emulator.

The address to contact is PROGS, Haachtstraat 92, B-3008 Vletem, Belgium,

For the German version of *The Painter*, contact Jochen Merz, Im Stillen Winkel 12, 4100 Duisberg 11, West Germany.



# OPEN CHANNEL

Open Channel is where you have the opportunity to voice your opinions in *Sinclair QL World*. Whether you want to ask for help with a technical problem, provide somebody

with the answer, or just sound off about something which bothers you, write to: Open Channel, Sinclair QL World, Greencoat House, Francis Street, London SW1 1DG.

## Desperate

I am desperate and at my wits' end. Can anyone help? I have a Centronics GPL II dot matrix printer which I cannot get to print graphics. I have tried all kinds of things but nothing seems to work. The only thing which happens when I ask for a printout is a few indistinguishable lines and then the paper moves up a complete sheet and continues repeating this.

I have three pieces of software — *Easel*, *Eye Q* and *Professional Publisher* — all of which use graphics to print and all do the same as described. Text printing, by the way, from Quill, Abacus or Archive generally works well.

I use the Miracle Systems

QL Centronics interface for printing, which is working correctly as I was able to borrow an Epson LX80, which printed the graphics from my three pieces of software. So if there is a reader who can help, please contact me.

S. Curtis,  
3 Avenue House,  
Casenove Grove,  
Stoke Newington,  
London N16 6AP.

## The End

Now that it looks as if the end is in sight for microcassettes, thoughts of QL owners must turn to the alternatives — floppy discs or hard discs. Although the hard disc seems a better buy at only £50 dearer

for a system equivalent to 55 times more storage than a floppy, is such a system feasible by itself?

May I plead for an article on the pros and cons of one system against the other? I am sure that it would be invaluable to veritable amateurs such as myself who know nothing of either system.

Gordon Fisher,  
Bristol,  
Avon.

*Editor's comment: I am looking into the possibility of having an article written on disc drives, but I can offer some interim advice. Unless you are a keen tinkerer with a firm understanding of how disc systems work, be wary of taking the plunge with a hard disc system. Floppy discs can be viewed as a faster, larger, cheaper and more reliable equivalent of the micro-cassette. Hard discs, on the other hand, are completely different.*

Stuart Honeyball at Miracle Systems explains: "To use a hard disc, you must use sub-directories; otherwise you end up with thousands of files in one huge directory. People have to be prepared to experiment with the system to find how the directories can be organised to suit their needs and how to use them. Some people have had problems with this."

Once you are familiar with it, a hard disc system is essentially easy to use but hard discs still cause new and experienced users a considerable amount of grief on any computer. This is partly due to the large size and storage capabilities of the medium, partly due to handling problems with the large programs which hard discs can handle, and partly to unfamiliarity.

If a floppy goes down you may lose a quantity of valuable work. If a hard disc goes down — most hard disc owners of my acquaintance have had a com-

plete disc loss at least once — you can lose months of work. External backup has to be done to floppy unless you own two hard discs or an industrial tape spooler and we have found that backup processes are not always reliable or predictable which is mainly due to compatibility problems rather than anything inherently wrong with hard discs.

The only way to transport data from a hard disc, if you do not run a modem, is by floppy. You cannot take out the hard disc and put it in the post. A serious user cannot evade the floppy disc.

To quote Honeyball again: "A hard disc is something you know you need when you read it." The turning point for serious users is often when they move to software which requires greater storage and speed to run than the biggest floppies or RAMdisc can provide.

I would not advise somebody inexperienced with discs to move straight to hard disc unless, perhaps, they were setting up in business and were prepared to employ professional consultancy."

## Confused

I disagree with A. M. Levett's comments on removing the voltage regulator to the outside of the QL. Being confused by the many suggestions how to prevent the QL over-heating, I tried this most obvious and least technical step about a year ago. I extended the cables leading to the regulator socket and passed them through the gap beside the re-set button, making no extra holes in the QL case. The regulator heat-sink I fixed at the right side, which extends the QL a few inches but looks satisfactory. Avoid switching on the QL before re-attaching the regula-

## Editor's notebook

This month's issue homes in on desktop publishing, with articles about general and specific aspects of DTP on the QL, but we also see the welcome return of Ron Massey after a period of personal upheaval with a review of DP Lightning Special Edition, and part 2 of Simon Goodwin's DIY Toolkit — MultiBasic. This program appeared last month, and the detailed commentary appears this month. For those who missed last month's edition, it is well worth looking up.

QL World has been contacted by Ant Publishing of Huddersfield, which has recently released a new program, Chinese Chess, for the QL, to stress that it has no connection whatsoever with ANT Computing, publishers of a pc emulator. Ant Publishing apparently only discovered the existence of the other company after releasing the new program.

Stop press: Fred Toussi of text<sup>87</sup> has been in touch to say that some points made by Bryan Davies in this month's review have not been dealt with. Further details next month.

Some have asked why we have no April Fool featured in this issue. The answer is: we have — but that is another story for another time. Have a nice April.



tor to its heatsink as I did; fortunately my QL survived this blunder.

I think that every QL owner should conduct such an operation. I have never had problems with QL lock-ups but I am sure its lifespan will benefit from cooling its interior. Most important, the reliability of the Microdrive cartridges is greatly improved. Since I stopped the tapes being exposed to radiation from the regulator, no single data loss has occurred.

Last year I sent you a letter complaining about *The Editor*. At that time I had an unextended QL which did not allow The Editor to be sued for serious word processing.

Since then I have bought a 512K memory extension card and now I am extremely satisfied with the program. I am writing all longer texts on it, later importing them into Quill for final editing, multitasking it with *Task-Utility*, the tiny program published in *QL World* some months ago, using only the Qram RAMdisc and printer buffer. Multitasking with Qram I have found to be unreliable and it uses valuable memory.

I still have one query. Is it possible with The Editor V1.7 to have white ink and a white cursor at the same time?

**Christian Caris,  
Witten.**

*Editor's comment: This is a slightly different angle on the old 'regulator' debate and we are pleased to hear you have solved a problem for yourself. Why do you not write and tell DP how pleased you are with The Editor? DP are the experts and I am sure they can give you the ultimate answer to whether you can use white ink with a white cursor.*

## Error

I hope that *QL World* readers enjoyed my game *Metal Exchange* which appeared in the January, 1990 issue. I have found one small error in my listing in line 29, the second quote mark is missing; it should read `k$="..."`.

I also forgot to mention how to make the game easier or more difficult. This involves the random number generator in line 46:

```
46 intr=(RND(75 TO 125))/  
100;mon$(f)*intr)
```

The variable `intr` is the percentage increase/decrease on the share values. By making the 75 smaller, you increase the probability of the shares decreasing in value. If you increase the value 125, the shares are more likely to increase.

The program is part of a much larger game which I am willing to reproduce the game on request. See *QL Scene* for details.

**Andrew Thompson,  
London, EC1.**

## Grafix

It seems to have been taken from my letter published in the January, 1990 issue of *QL World* by some people that the failure of the system/program combination to operate to produce output from *Desktop Publisher Special Edition* was a result of some fault on the part of Digital Precision. It is, in fact, the program, *GraFIX*, which is not produced by Digital Precision, which seems not to output properly to the Serial 8056 using the driver supplied.

**James McGreehin,  
Clackmannanshire,  
Scotland.**

*Editor's comment: At the time of writing, McGreehin had approached representatives of PDQL and DP at shows with his problem and was awaiting suggestions from either company on how it might be overcome. We hope he will let us know as and when this occurs, as we understand there are other 8056 users who are having connection problems with GraFIX.*

## Farewell

I read with alarm the article in the February, 1990 issue of *QL World* about a total stoppage of the production of microcartridges. I rushed to a Boots near here and bought the three last wallets, each containing four. Immediately after that they evaporated from Boots as fast as anything.

Until now I have been buying one or two wallets per

month. If only 25 per cent of owners are totally dependent on the cartridges, as I have been, it should still yield a voluminous market.

How is it possible that an alternative producer of cartridges, to be sold at least by mail order cannot be found, via suppliers which advertise their goods in your magazine?

Could you do that? Or could you ask Sinclair or Amstrad which bought the rights to produce the products, to do that?

When I came to live in the West — my country of origin is Czechoslovakia — among the first things I liked was the steadfastness of the supply of spare parts and consumables to support products many decades old. How is it possible that with a machine so excellent as the QL there is such a lack of love of it?

Please make provision for an alternative supply of QL cartridges — perhaps from the Far East? — and advertise it in your magazine. I am sure there will be no regrets.

**Dr. J. Slechta,  
Leeds.**

*Editor's comment: There are still many unanswered questions concerning microcassettes. I also wonder why when I can buy spare parts for a 50-year-old bicycle, that we cannot obtain parts for a computer less than 10 years old.*

There is, so far as we know, only one set of reliable machinery, which belongs to Ablex Ltd, to make the cartridge cases and it is probable that it would be too expensive for another company, even in the Far East, to build and test another set of presses. Success may depend on the Ablex machinery being made available to another manufacturer if it is no longer economic for Ablex to produce cartridges. The tape which the cartridges need is an old and specialised design but it is not exclusive to the QL and we have reason to believe it is still available.

Amstrad has not supported the QL significantly since it bought the Sinclair Research computer designs. Sinclair Research still has an interest in the microcassettes and may be able to assist, but we have no news yet.

I wonder about the figure of 25 percent; that estimate is from

a supplier and although it may well be accurate among reasonably active users, I suspect a far larger number of occasional users still rely on unexpanded machines and buy microcassettes but in far smaller numbers.

They may be numerically less significant than more regular customers but they rely on microcassettes to keep their QLs serviceable. For their sake as well we must try to find a source of supply.

## Lost

I would like to award a bouquet for *Mendisp* in the January, 1990 issue — a classic 'just what I always wanted'. I would like to award a brickbat for losing so many page numbers — 18, 19, 35, 42 and 44 as well. Please do not be lazy like some of the big magazines which forget readers who want to go back to an article or advertisement.

**C.R. Oswin,  
Christchurch,  
Hampshire.**

*Editor's comment: I think you deserve an explanation. Our wannabees had no tuit. Incidentally, I picked up a prestigious magazine at a newsagents which had more than 60 pages and not a single page number. The full story of 18, 19, 35, 42 and 44 would take too long to tell but the alternative would have been far more — or less, if you like — conspicuous.*

## Help

I am writing as a relatively new QL user and one who has only recently been introduced to *QL World*. I have a standard unexpanded 128K QL linked to a Smith Corona D200 printer. After a number of attempts I have managed to install the printer and get it to work with the four Psion software packages as this letter — typed and printed using Quill demonstrates — but, to date, all attempts to get the printer to print-out program listings and screen dumps have failed.

I hope that I am not alone among QL owners.

**K. Plummer,  
21 Armiger Way,  
Witham,  
Essex CM8 2UY.**





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## Microcassettes – The Search Continues

While the QL community ponders on alternatives to the QL microcassettes, lately reported to have ceased production, investigations are under way to see if the manufacturing process can be resuscitated.

Dennis Briggs of Adman Services and Quanta is among those who believes that the technical barriers to continued existence are not so great as the manufacturer, Ablex, believes.

"I have been to see Maxell, the tape manufacturer, which has offices near here. One of its technicians is an old QL user and he reckons the proper tape can be obtained, although it is not very widely available", Briggs told *QL World*.

The type of tape involved is believed to be specially-lubricated videotape designed for use in continuous-loop video cartridges. The tape must be cut into narrow strips before it can be mounted in the microcassette cases.

EEC Ltd, which has a large quantity of unmounted drives in stock, is understood to be

very concerned about the non-availability of microcassettes and an unconfirmed report says that Sinclair Research, which collects royalties on the microcassettes as copyright holder to the design, still considers the microcassettes a worthwhile source of income, contrary to reports that few are now being sold, and does not wish to see production cease.

Another possible barrier to renewed production would arise if the case-moulding machinery owned by Ablex reached the end of its life-span. The original case design was not entirely successful and the Ablex machinery was made to an improved specification. "If somebody tries to make microcassettes using the original jigs it could be a disaster," said one observer.

Despite that possibility, it is rumoured that a considerable stock of unused cases of the improved design had at one time been manufactured but it is not known whether this is available for use.

## Sam Calling

Jussi Koskinen of Aholasoft has contacted *QL World* with a request that payment for the game program *Sam the Little Spaceman*, reviewed by *QL World* in the February, 1990 issue, should be made in cash "as a cheque costs more than £5 to clear in Finland." The quoted prices for *Sam the Little Spaceman* are £5 if a formatted microcassette is sent, £10 otherwise.

High conversion charges often complicate the transfer of money overseas. Because of the well-known risks associ-

ated with sending cash through the post, it is advisable to check with your bank on the possibility of sending a bank draft or other more secure method of payment. Envelopes obviously containing small paper enclosures or addressed to the company may be more likely to invite tampering than those having the appearance of merely personal correspondence. In some countries it is illegal to post cash.

Aholasoft's full address is **Jussi Koskinen, Kirjurintie 3, SF-05400 Jokela, Finland**

## Scanner

Our apologies for omitting the information box from the QL Scanner review in the February issue. The U.K. distributor for the Falkenberg QL Scanner is **TK Computerware, Stone Street, North Stanford, Ashford, Kent TN25 6DF Tel: 0303 812801**. Consult the TK advertisement, which usually appears on the page opposite this one, and you will find the scanner under 'Sundries'.

## Quanta

The January, 1990 issue of the Quanta monthly bulletin – volume 6 issue 12 – contains articles about the Minerva EPROM, Forth, a beginners' guide to weather satellites, various personal viewpoints and small routines, members' wants and advertisements.

The February, 1990 issue contains a valedictory message from the current editor, Roy Barber; an appeal for a person to stand for the post of treasurer for the new financial year; a report on a QL users' meeting in Italy; some basic information on fitting a switch-mode power supply; some technical information from Miracle Systems on its hard disc system, which reinforces with a little more detail the advice from Stuart Honeyball related in *Open Channel* this month; notice of the AGM on March 25, letters and various short technical articles.

There will be a Quanta workshop at Portishead on March 4 1990. Details from **Chris Gregory, 0272 513653**.

For details on Quanta write to **Phil Borman, 62 Prospect Avenue, Rushden, NN10 9DH**. Please note that this is a new address.

## GEC Prize

Electronics giant GEC is offering a prize worth £3,000 for innovation and development in the training of manufacturing systems engineering. The prize is one of a number of Partnership Awards, an initiative by the Council for Industry and Higher Education, promoting innovative teaching in higher education.

The award is in line with current Government thinking concerning the promotion of engineering and computing skills to meet a projected short-

fall in technical personnel in the next two decades.

School and college leavers entering manufacturing with specialist computer, engineering and manufacturing knowledge face opportunities in the management of businesses on a global scale if they have sufficient flair, says GEC.

Assessors judging entries will be looking for work which "develops the understanding of human factors and enlightened management and which meets, through the scope for learning

and probably through projects, the need for engineering skills and creativity which manufacturing requires."

Many engineers feel that it is the emphasis on the management path in British engineering and the technical/management split to which this gives rise has down-graded the opportunities and status available to career engineers in all fields and is a contributing factor to the drain of new skill out of engineering and into finance and management-based careers.

The honest GEC assessment of the rewards open to successful trainees in manufacturing engineering inadvertently reflects this situation.



# TROUBLE

## Bryan Davies looks in depth at the world of QL software.

**F**or a fairly brief period I had an Amstrad PCW 8512 system and subscribed to an equivalent of *QL World* for that machine.

Readers' letters are always worth reading in my estimation and one from that magazine sticks in my mind for being more unbelievable than most. The gist of it was that the writer had surrounded his PCW with chicken-wire netting to prevent the computer interfering with the landlord's television reception. Whether the method was one of suppressing emitted radiation or of physical restraint was not clear but the implication was that it worked. It may sound daft but it could have been serious, as with the letter we received about sawing a QL in half.

Two of my display units stand side by side, separated by only 2cm. of chipboard and both of the screen pictures start wavering when both computers are on, but neither does if only one computer is on. The locking-up of one machine the other day occurred simultaneously with the switching-on of the other and looked to be no coincidence. The simultaneous re-setting of both machines was certainly no coincidence, as it was a result of a momentary failure of the public power supply during one of our frequent wind storms. A third screen is now never steady, since being sited alongside one of the others, but was satisfactory before that one was introduced.

You might say the QLs on either side have taken umbrage at the PC between them but I would like to have some more technical explanation. Apart from the mutual interference of the computers, the remote telephone I sometimes have to transport while engaged in long conversations with other QL folk becomes distinctly upset when taken anywhere near the computers. It also chirps and locks up for no apparent reason at odd intervals when in its "pew".

It is amusing, in a way, still to be talking about lock-ups years after getting rid of the problem with my original QL, currently little-used. To be fair to the present #1 QL it comes to a standstill perhaps once every week or two, a rate with which I can live. Unfortunately the small bars on the screen which have in the past signalled problems with the Trump Card have appeared again twice recently. The stoppage rate with the PC is much higher and considerably more frustrating. In a very broad sense, memory management appears to be the problem area. There seem to be far fewer imponderables in a QL system.

Do you ever think of what air travel would be like if computers and software on aircraft were even remotely as unreliable as the simple machines we play with every day? About 30 years ago, in the infancy of blind landing development, we were given a criterion for the computer equipment being designed to achieve this feat – failures in the equipment had to be limited to those which could produce no more than one overall system failure per 10<sup>7</sup> landings. Put another way, we were allowed to have one major failure per 10 million landings of each aircraft.

In case anyone reading this is familiar with the subject I should say that the wording is based on memory and the reason for quoting figures is to indicate the order of magnitude by which the performance of aircraft equipment has to exceed that of our pet desk computers. The descendants of our large black boxes of those days have only recently been approved for regular airline use during very bad visibility conditions.

The computers we buy, and the units we plug into them, of whatever type or brand, seem almost invariably to be on sale long before they can be trusted to work properly for more than a few hours. In my experience there are some welcome exceptions to this level of performance; I have no complaints about the reliability of the printer, disc drives or display units in my collection and comments made to me by other people suggest they feel the same.

The part software plays in system stoppages is very difficult to pin down. The more complex the hardware and software interconnections, the less chance the user has of pinpointing the source of any problem. Fortunately for

them, most users seem to avoid problems, by never having the system switched on for more than an hour or two at a time and by running only one program at a time; for peace of mind and avoidance of wasted time that is the way to do it.

This leads me back to what seems the remarkable regularity with which software suppliers reply to my comments with "no-one else has had that problem", or "no-one else wants it to do that". As two examples of how different thinking on the same subject can be, try these alternative spellings/meanings produced by spelling checkers; confronted with an unknown word – "QuickFax" – the suggested correct spelling was "cockfights" and, for "adapter", the comment was "man". Not from the same program, I hasten to add, and the second was not an offered alternative in the conventional spelling checker fashion.

### Text 87 V3.00

My prayers regarding a reasonably fast spelling checker, for use with *text*<sup>87</sup>, have been answered in Version 3.00 of that program. It is ironic that the checker module is in fact *QTyp*, which I had looked at twice long ago and had decided not to buy. My reason for not using *QTyp* then was related to difficulties in integrating it into my way of working but using it with *text*<sup>87</sup> has proved to be mainly very simple.

There was never any doubt about its speed. Checking is done with the document loaded, so no time is wasted going out of the program and running a dedicated spell-checker separately – *QTyp* is actually a separate task – but running in conjunction with *text*<sup>87</sup>. Many overseas users will be pleased to find themselves being catered for; they must be displeased with having everything in English only. The charge – see INFORMATION – for version 3.00 covers English – more than 40,000 words – German and French word lists, as well as all the usual program files, making it remarkably good value.

Dutch and Italian word lists are available now and word lists for other languages will be available later. There are a few useful detail improvements in *text*<sup>87</sup>, such as help and information messages below the existing command line, the ability to merge \_T87 files into each



# SHOOTER

E M S O L V E D

other, selective changing of Rulers, Print-types and so on throughout documents; printing can be suspended with the ESC key and a whole file can be Export-ed without having to be marked as a Block.

In the February issue, mention was made of the difficulty **W.C. Bradley** had in getting a refund for unsupplied goods from **SUB**. Eventually he got the refund but, by that time, he had spent a significant amount employing the services of a solicitor to write on his behalf and was trying to obtain reimbursement for those costs also. At the time of writing he had not reported receiving any of this money.

Bradley's success in obtaining a refund for his original outlay might, however, give heart to other QL users who despair of getting redress for unsatisfactory service from any supplier. He has also succeeded in getting various other parties to take an interest in his case. It can be helpful to have other people aware of your problem, because word gets round eventually and most suppliers are not looking for adverse publicity.

## Intentions

There have been suppliers on the QL scene through the years which could be said to have pursued a deliberate policy of taking customers' money with little or no serious intention of supplying the advertised goods. That is not a complaint which seems to be valid in the case of **SUB**. The problem looks to have been one of offering far more than could ever be provided, with the limited resources which were apparently available. Good intentions regrettably do not automatically result in good service.

Unfortunately, we have now received two more complaints about non-receipt of goods ordered from **SUB** and one about non-appearance of most of the originally-proposed "monthly" magazines.

Replies have been received from **SUB** concerning two of the complaints so far made to it. **Melvyn Hiller** ordered a box of A4 paper in August, 1989 and complained that, by November 30, he had not received it. He said in his letter to *QL World* that he had telephoned **SUB** twice after placing the order and had then written on November 11 to cancel the order. **SUB** commented that it had not despatched the order because the price of the paper had increased – because of

the number of sheets per box increasing – but wrote to Hiller on August 29 explaining that, and had received no reply by January 26, 1990. No mention was made of the telephone calls or the letter of cancellation but a further letter dated January 15, 1990 from Hiller has been received and he "is now being sent a refund".

**Tom Erlandsen** wrote from Switzerland to say that he had not received part of an order placed in May, 1989 but the cheque for the whole order had been cashed. The bundle of letters and copies from him numbered 13, which should be sufficient paperwork to make the situation clear, but there are obviously some question marks still.

Erlandsen is asking for a refund for a Schön keyboard he has not received. He agrees that he was notified of the arrival in Switzerland of a keyboard for him but he claims that the paperwork accompanying it was inadequate and he would have had to pay Customs a large sum to obtain the keyboard, which he refused to do; the keyboard was presumably returned to the U.K. **SUB** points out that the keyboard was sent to him direct from Schön and the latter supplier states that the paperwork was in order; it had "incurred . . . a large postal surcharge", presumably the cost of the keyboard being returned. The customer's cheque was cashed because the goods had been sent.

The dispute is now three-way and **SUB** is prepared to offer only a partial refund, or alternative goods mentioned in one of Erlandsen's letters, because it expects the customer to pay the postal surcharge. **SUB** is awaiting copies of documents from Schön, in support of the latter's contention that the keyboard was shipped correctly. No comments have been received from Schön on the situation.

**Norman Adams** wrote to complain that he had received only four issues of the **SUB** magazine – and one was an introductory sample – in two years of membership. The details of what has been offered for the subscriptions paid to **SUB** seem to have varied with time but several advertisements indicated clearly that subscribers would receive a magazine each month.

The latest issue number of which I am aware of is #3, a copy of which was sent to me in December, 1989. Issue #1, which has no obvious date, makes reference to a potential rival for *FlashBack* –

*QuickFax* – and the wording of the comments suggests they were written prior to 1989 – possibly much earlier. **SUB** was placing advertisements mentioning the magazines as far back as 1987. **SUB** has for some time been stressing that the subscription covers a certain number of magazines, not a certain number of months.

**Richard Turner** of **SUB** is correct to say that the rather negative atmosphere which seems to exist in some quarters about its operation has been created in part by rumour. *QL World* is not in the business of trying to manufacture a bad reputation for a QL supplier but we try to follow up complaints and it is inevitable that some are passed to us.

## Disputes

If the **SUB** magazine has been issued regularly it would seem desirable for us to be told so. The outstanding financial disputes with the three readers do not involve a great amount of money and it would on the face of it appear that **SUB** could deal with each of them quickly.

If **Colin Holland** of Chertsey has not forgotten the letter he wrote last year, he may be interested to hear the comments from **Transform International**, which replied promptly to my letter. Holland complained that the *QL Organiser* package he bought did not permit the two machine to be connected physically and he had to buy a separate and expensive cable to link them.

**Transform** pointed out that the *Psion Organiser* manual states that any external link to the *Organiser* has to be through the *Psion Comms Link* – current cost around £60 – and it does not claim to supply this with the *QL-Organiser Link* package it sells, which costs about £40. No mention is made of the *Comms Link* in the company's advertising, since it is assumed users will be aware of the need for it from reading the manual.

### INFORMATION

text<sup>87</sup> £60 (upgrade from earlier versions £20-25):  
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- a memory cut that resets the QL to appear as an unexpanded 128K type for the few early programs that refuse to run in expanded memory.

The disk interface can access up to 4 disk drives (e.g. our DUAL 3.5" plus our 5.25") and has the same commands as are used for Microdrive control. There is an additional command FLP\_USE which can be used to divert all MDV accesses to FLP (the floppy disk interface device name). This makes the transferring of your software from unprotected Microdrive (i.e. the majority of QL software including Quill, Abacus, Archive and Easel) to disk a trivial task. A simple step-by-step guide for transferring Quill as an example is given in the comprehensive TRUMP CARD USER MANUAL supplied with the TRUMP CARD.

The TRUMP CARD 768K's RAM adds to the QL's own 128K giving a total of 896K. Like the firmware the extra RAM is installed automatically when the QL is switched on so that no installation procedure is necessary. The exception to this is TOOLKIT II which can be left uninstalled for compatibility if you have other toolkits; installation consists of simply entering the command TK2\_EXT.

Fitting the TRUMP CARD 768K is easy - you remove the door at the left hand end of the QL and slide the TRUMP CARD into the expansion port. A "Beginners Guide" on pages 3 and 4 of the TRUMP CARD USER MANUAL will quickly get the novice and experienced user up and running.

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Diskettes are more reliable than Microdrives, hold much more information (720K after formatting) and are several times faster. Besides these advantages they actually cost less. Our QL DUAL DISK DRIVE is fully boxed in a black metal casing and is mains (220V-240V AC) powered.

An EXPANDERAM 512K can be used as part payment against the TRUMP CARD 768K PACKAGE. Just send it to us together with £285 (£255 for overseas customers) remittance and we will send you the TRUMP CARD 768K PACKAGE.

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We recommend that you consider purchasing the QL HARD DISK only if you have already upgraded to floppy disks (e.g. TRUMP CARD PACKAGE) so that backing up is practical. Also the QL HARD DISK uses about 55K of RAM leaving little room in an unexpanded QL for programs.

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- ☆ QL-standard format
- ☆ Very quiet operation



(Needs disk interface e.g. TRUMP CARD)

## QL 5.25" DISK DRIVE £125 (£114)

- ☆ 360K capacity
- ☆ Ideal for Conqueror
- ☆ Through-con for dual 3.5"

This complete unit can be retrofitted to a TRUMP CARD PACKAGE so that Solution/Conqueror users can read PC diskettes. We recommend that Microdrive users upgrading to disks consider the QL-standard TRUMP CARD PACKAGE rather than the 5.25" drive.

(Needs disk interface e.g. TRUMP CARD)

## QL DISK CARD £100 (£89)

- ☆ TRUMP CARD without RAM
- ☆ Full TOOLKIT II, etc.
- ☆ Controls up to 4 drives

The DISK CARD is intended for use with an internally expanded QL or with the EXPANDERAM.

## QL DISK CARD PACKAGE £250 (£224)

DISK CARD Plus:

- ☆ DUAL 3.5", 720K DISK DRIVE
- ☆ 10 diskettes

## QL TRUMP CARD 256K £135 (£120)

- ☆ Increases QL RAM to 384K
- ☆ Controls up to two drives
- ☆ Toolkit II, etc.
- ☆ Can be expanded to 512K or 768K

Please note that we offer neither the parts nor the service for expansion.

## QL TRUMP CARD 256K PACKAGE - £285 (£255)

TRUMP CARD 256K plus -

- ☆ Dual 3.5", 720K disk drive
- ☆ 10 diskettes

**Tel: (0904) 423986**

To place an order by phone please have your credit card ready. For overseas customers we charge the prices shown in brackets.

To order by post, please fill in the form opposite or write to us quoting your credit card number and expiry date, or enclosing a cheque payable to MIRACLE SYSTEMS Ltd

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York, YO1 3BG, U.K. Tel: (0904) 423986**

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I enclose a cheque to the value of: £ \_\_\_\_\_

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Address \_\_\_\_\_



# DTP

# FORUM

**In the first of an occasional series on desk-top publishing topics, Mike Lloyd describes the objects which can be placed on to a page.**

**D**esk-top publishing is quickly becoming one of the most significant uses of personal computers. What used to take the skills and time of several people, each an expert in his particular field, can now be reproduced on inexpensive computer systems like the QL. For the electronically-equipped upstarts to achieve the best results, however, some of the traditional publishing skills need to be learned.

The efforts of enthusiastic DTP novices can often be a hideous parody of the typesetters' science and the graphic designers' art. Text leaps from the page in conflicting typestyles, artwork is plastered wherever it fits and fussy embellishment for its own sake seems to be irresistible. The keys to success are self-discipline and an understanding of the principles of harmony and balance in page design.

As in many other computing endeavours, DTP skills exist on two distinct levels. The first comprises the purely technical ability which comes from understanding the mechanics of the particular piece of software you have chosen. DTP users do not need to know how to melt lead into character moulds, compose lines of type into slugs, create galleys of text and paste up pages but they need to know the keyboarding operations which are their equivalents.

The second level comprises the design skills which allow you to use your technical ability to produce a worthwhile product. Here the computer can be less than helpful, because it gives novice and expert alike phenomenal power without necessarily giving an insight into the design principles needed to use that power to good effect. This series concentrates on graphic design and will be of value to DTP enthusiasts no matter what their mix of hardware and software.

The output from a DTP program is a printed page. Each page is designed and assembled separately, although pages in a publication might and arguably should share many common features. DTP pages are much more varied than word-

processed documents: the dummy pages accompanying this article each have a dozen separate elements. DTP output tends to have more white space – empty area on the page – than typed documents but even so it is usually possible to type-set about double the amount of text on a page than could be typed on it.

Whether they are reports, letters or manuscripts of novels, typed documents are very similar in appearance. In contrast, type-set pages have a character of their own. This can be proved by looking at pages from different magazines slightly beyond reading distance. The shape of the text, the number of columns, the use of colour, the presence of graphics and numerous other clues should soon reveal what type of magazine the pages are from and even identify individual publications.

Whether originality, clarity or stylishness is sought, good page design can send readers the desired message almost without their being aware of it. Some graphic designers even argue that their skills reduce text to just another graphic object.

## Objects

Objects which appear on a type-set page belong to one of three major categories – body text, artwork and loose objects. The overall appearance of a page depends on all three elements, but *body text* – marked 1 in figure one – is usually dominant. Body text is also called main text or running text. Depending on the publication, body text might spread from column to column and from page to page or it might comprise short, separate items.

Except in books, type-set text normally is printed in columns. The number of columns used depends on the proportions of the page, the design and size of typeface chosen for the body text, the complexity of the text, the average length of the words used and the need for flexibility in page layout.

Most pages are printed in the upright orientation but publishers opting for the alternative landscape mode will probably

use more columns rather than wider ones. That is because readers find it difficult to keep their place in over-lengthy lines. If the text contains a high proportion of long sentences or long words the columns may need to be wider to avoid disturbing the reader's eye and to limit the number of words broken at the end of lines.

The text on this page is broken in three places. The first column contains a *breakout* – item 16 – which can also be termed a *callout*, a *blurb* or a *pull quote*. A breakout is yet another technique for engaging a casual reader's interest in the story, while also giving the page designer the opportunity to fit the text more precisely to the column inches available. Breakouts should be brief, interesting and clearly separated from the running text.

In this example the text has been placed in a shadowed box to lift it from the page and quotation marks have been added for additional effect. Breakouts can cross any number of columns or they can spread across the top or bottom of the page.

Some rules of thumb learned by the experience of generations of printers are that single-column text tends to be about 10 words wide, multiple columns tend to be between 30 and 50 characters wide and columns of fully-justified, proportionally-spaced text are at most the width of two-and-a-half alphabets. Rules like these are, of course, made to be broken but it is always useful to be aware of what the broken rules are.

The number of columns impacts on other design considerations. On a two-column page pictures can cover either one column or both. A three-column layout allows pictures of three sizes to be placed in six horizontal positions, while five columns offer five sizes of graphics and no fewer than 13 locations. More than five columns are rare for publications except newspapers.

The three-column layout for the pages illustrating this article was chosen to allow some flexibility of design while putting a large amount of text on to the page. Incidentally, the mock-Latin text is the method commonly used by publishers to create the look of English text without the meanings of the words interfering with the appreciation of the page design elements.

Figure one is entirely lacking in



graphics but the page contains sufficient elements to attract and hold the reader's attention. Only two columns are used for *running text* – item 1. The third column is devoted to a *sidebar* – item 2 – used to display a self-contained story related to the main text. It can be an extended footnote, an explanation of a technical term found in the main text or a topic related loosely to the main article. It has its own headline centred on the column and a heavier type is used to distinguish it from the body text.

The main text begins with an initial *drop cap* – item 3 – which draws the reader into the first sentence. Its typeface echoes that used in the headline and the main text has been indented to make room for it. It is usually good practice to adjust the top and

## Special Report

# HEADLINE NEWS SCANDAL

*Brief introduction to the story to tempt the reader. This is the tag line or deck.*

by John Lee.

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Continued on page 11

## Headline Scandal

Continued from Page 4

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should have a caption linked by clearly separated from the title length.

MARCH 1990 11

bottom of drop caps so that they align exactly with the top and bottom of the lines they occupy but DTP programs rarely have the font sizes to achieve this exactly.

The second text column is divided by a *subhead* – item 4. Subheads are usually placed between paragraphs where they will not interrupt a train of thought. Nevertheless, their job is to break otherwise stodgy text, to give readers a chance to dip into a part of the article and to advertise what can be expected in the succeeding lines. Typically, subheads are two key words extracted from one of the paragraphs which follow it closely. Adding and removing subheads is one way to ensure that a piece of copy fits the page space allocated to it.

Another feature of the second column is the *continued line or jumpline* – item 5 – which advises readers to turn to page 11

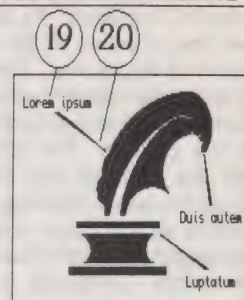


Figure 1. The caption attracts the reader's eye and describes the graphic.

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for the rest of the story. Its opposite, a *carryover line*, appears at the top of the first column of figure two. The jumpline uses an italic type related to the typeface of the running text and is justified to the right of the column. The object is to associate the jumpline with the running text without the two becoming confused.

Everything else in figure one falls into the loose objects category because they are not strictly contained in the text columns, although their positioning on the page is influenced strongly by the imaginary grid which would be formed if the page was devoted wholly to text columns.

At the top and bottom of the page are items which provide useful information and which provide some common bonds between the pages of a publication. The magazine name appears in the *running head* or *strap line* – item 6 – at the top of the page. The title's punctuation is correct because the magazine's circulation is limited to just me.

Between double lines at the bottom of the page is the *running foot* – item 7 – with which is placed the *folio*, or page number – item 8. The use of thin horizontal lines, called *hairlines*, is designed to associate the columns of the page more closely and to delimit the space occupied by the printed elements of the page.

The largest print is reserved for the story headline, designed to encourage the reader to begin reading the main text. Headline writing is a minor artform in its own right, with the creativity of its practitioners stemming from the conflicts between filling space exactly, attracting the reader's eye and capturing the spirit of the story.

## Captions

The third column is headed by a one-column *graphic* – item 17 – enclosed in a box beneath which is a *caption* – item 18. Captions are read by more people than the main text and so although the main purpose of a caption is to describe and explain the graphic here is yet another way of bringing a casual reader into the main article. The first few words of each caption are emboldended for emphasis. To avoid confusion between the running text and the caption they are in different typestyles and considerable space has been left between them.

The graphic contains text describing elements in the drawing; these are *call-outs* – item 19 – and they are linked to the object they describe by short lines called *leaders* – item 20.


The third graphic – item 21 – affects all three columns and its size, location and visual impact suggests strongly that it must be absolutely central to the theme of the article. The car is not boxed but the running text is allowed to flow round its outline. This technique emphasises the

curves of the vehicle, reduces the amount of white space which would otherwise isolate the car and brings text and graphic into close proximity.

The headline is accompanied by an *overline* – item 9 – also called a *kicker* or *eyebrow*, whose task is to categorise the article. Examples are "World News", "Cover Story" and "Exclusive". Below the headline there is a longer introduction to the piece which can summarise the article, mention its context or pose a question to the reader which can be answered by reading the main text. This is called the *deck* or *tag line*.

One of the features of old newspapers is their use of multiple decks so that the introductions to their main stories looked like the superstructures of battleships. With the modern emphasis on brevity, overlines and tag lines have all but disappeared from newspapers, although they often feature in magazines.

Below the tag line is the author's name printed as a *byline* – item 10. It is *QL World*



*"Captions are read by more people than the main text. Here is a way of bringing in the casual reader."*

policy to place the author's name in the tag line. Balancing the byline is the only piece of pure embellishment I have allowed myself, a simple hairline – item 11. All the text between the running head and the top of the main text columns is in the same typeface, albeit in two sizes and with the tag line in italics. Characters of this size are called *display type* and it is common for them to be of a contrasting style to the main text typeface. Additionally, because the type is larger it can be more ornate, tempting the unwary into unbalancing their pages with florid display type over staid articles.

Although the foregoing paragraphs have covered all the objects on the page its description is not yet over. A very important element of page design is the *white space*, or blank areas. Figure one has large margins, both horizontal and vertical, which give the page a sense of space, make reading easier and convey a sense of importance to the text. After all, if more text were to be crammed on to the page it would be because it was not very important.

The inside margin, the one closest to the binding edge of the page, is called the *gutter* – item 12. The gaps between columns – item 13 – can also be called gutters but they are also known as *alleys*. Adequate guttering is essential to keep the reader's eye on one column at a time. When space is at a premium guttering can be narrowed and a thin vertical hairline used to separate text, although this can

give the page an old-fashioned, heavy look.

I have put white space between each paragraph of the main text. This is unusual for a type-set publication but it breaks the text and removes the need for indenting the start of paragraphs. Clear paragraph separation prevents the text becoming a monolithic mass and allows readers to skip to a new section of text. It is for authors and editors to ensure that paragraphs are of the length specified in the document style sheet and that each paragraph expresses a single idea.

Figure two shows page 11 of the *Typographer's Gazette*, on which the remainder of the story is printed. The overall style of the page identifies it as part of the same publication; the running head and foot are identical in design, although reversed for an odd-numbered page; the text uses the same typefaces; the three-column layout remains and there is a similar proportion of which space on the page. Part of the graphic designer's skill is to make pages different while still linking them with common elements.

The story begins with a carryover line – item 14 – below an abbreviated and shrunken headline – item 15. The headline typeface is the same as its larger forerunner but compressed to fit exactly a column width. The carryover line is placed close to the headline, allowing readers to confirm their whereabouts almost without consciously reading the display type and without interrupting their concentration on the story.

At the opposite end of the text there is a clear indication that the end of the story has been reached. Sometimes this role is undertaken by the author's byline but the magazine logo or a simple graphic works just as well at reassuring the reader the piece is complete.

The professionals in the publishing world would not be impressed by the demonstration pages; the clarity of the running text is poor, the display types are obviously computer-generated and insufficient attention has been paid to aligning the page elements. They might be more impressed with the time taken to produce the two pages – less than three hours. With a higher-resolution printer a respectable publication could be designed, assembled and printed by one person in less than a week.

**Technical notes:** The demonstration pages were assembled with *Professional Publisher* from Digital Precision. All the typefaces for both display and running text were the defaults for that package, although the bold and italic options were used where necessary. The text was prepared in *Quill*, the line drawing was taken from Pro Publisher clip art and the car was scanned from a photograph by Juergen Falkenberg's *QL-Scanner*.



# Thor XVI Version 4

Version 4 of THOR XVI is a completely redesigned hardware and software version of the well-known CST THOR XVI, now a 100% Danish production. It is produced by one of the largest Scandinavian manufacturers of high quality measuring instruments vouching for the high standard of our product.

The brand new version of ARGOS (6.41/1.07) introduces a number of new facilities and a much improved full SCSI hard disc handling. ARGOS 6.40 now supports the standard IBM AT keyboards, IBM AT extended and PS/2 extended keyboards, covering 11 different national languages.

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ARGOS windiwing facilities are extended to support separate screen MODE for each job.

In addition to PSION Xchange we deliver free of charge 2 discs with easy to use menu system and utilities.

Present THOR XVI users please register with us in order to request a ROM/Software upgrade. Technical support is already available in the U.K. through P.M. Engineering.

Please request the new 12 page THOR XVI brochure and price list containing also a description of the new coming products. We are pleased to announce 2 new products:

★ **ARCTURUS EDITOR (Arced)**, the indispensable companion for programmers (also running on THOR 8 and Sinclair QL), introductory price: **GBP £45.00**. Please request a technical description.

★ **C++ COMPILER** for the THOR and QL range of products, is under development.

*Thor International offers software service and hardware reparations  
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# SOFTWARE FILE

## LIGHTNING SPECIAL EDITION

In May 1988 the QL market was struck by *Lightning*, a Digital Precision software-only package which changed the way people looked at the QL – literally. It put go-faster stripes on the machine. Several other aspects of QL performance were also enhanced and accelerated by the product. Eighteen months later Digital has launched what it claims is faster, with an even better specification, to put more power at your fingertips – *Lightning Special Edition*.

Qdos and SuperBasic were squeezed into a very compact space on the QL during its somewhat turbulent and tight development schedule. An inevitable result was some skimping on performance. The entire operating system for the QL, including SuperBasic, occupies less than 48K. The key parts of the QLs screen-handling routine occupy a miserly 387 bytes. The code for graphics and computations are also very compressed.

Admirers of the Amiga graphics and processing power may care to consider that the Amiga uses custom graphics chips with an operating system occupying 800K, 16 times more than the QL has. Even worse is the new OS/2 operating system, with a massive 1,600K.

Now the QL has had time to mature its internal workings have been analysed in minute detail. It is not surprising that better and faster ways of doing things have been discovered. Also memory is not as scarce and costly as it used to be.

Lightning Special Edition replaces slow Qdos code automatically by speed-optimised routines. It does this by instant patching of the QL vector table – list of pointers stating what routine is where in the QL memory. In this way program control is directed to the new code without the QL being aware any changes have occurred.

That means that once users, who need have no computing knowledge, install Lightning SE – either from ROM, disk or microcartridge – on their QLs, they will enjoy significant increases in operational speed of the programs they run. The programs can be of any type – interpreted SuperBasic, compiled SuperBasic or any other language or machine code. Users are not expected or required to have any special knowledge for the programs to be accelerated automatically. In its usual forthright manner, Digital describes Lightning as a “magic wand utility”. I think that is an excellent description.

Ron Massey is struck – but not dumb – by DP's latest.

Installation of Lightning SE is almost idiot-proof. The user is taken through a series of yes/no options, with help and advice at each stage, as well as clear information about action taken and decisions already made. The default response to questions, obtained by pressing Enter, is usually a sensible one.

A QL with Lightning Special Edition installed feels more responsive and professional. When I pressed keys, things happened – fast. Text would flash on to the screen, cursor navigation was brisk. Psychologically, I felt I was dealing with a new machine.

Lightning SE does not fix operating system bugs. The reason is that programs may “rely” on the presence of bugs. For example, after using SCALE, the lengths of lines drawn by the QL are not always as specified. Wisley, DP has made Lightning SE mimic the operating system, even though the operating system seems to be incorrect. It is only more serious anomalies – crashes, COT(0), off-screen graphics and so on – which are corrected by Lightning SE.

Steve Sutton, the Lightning SE principal author, has a list of impressive titles – *The Adventure Creation Tool*, *Solution* and *PC Conqueror*. He also has to his credit the official removal of Lenslok from the DP secondary compiler, *Supercharge Special Edition*. Others credited include Gerry Jackson (graphics), John Paine (maths), Freddy Vachha (maths and manual) and Chas Dillion (features).

The original Lightning, as reviewed in the September, 1988 *QL World*, provided the following:

- \* Speeded screen printing in MODE 4 and other screen-orientated commands such as SCROLL, PAN, CLS, and COPYing to SCR.

- \* Accelerated internal mathematics and graphics.

- \* A NUL device and a drain – black-hole infinity pipes, useful in forcing slave blocks, flushing unwanted data and for easy programming.

\* Seventy QL character sets, of use only by programmers or in *Professional Publisher*, *Page Designer*, *Special Edition Desk Top Publisher*, *Front Page* and some graphic programs such as *Eye-Q*.

Lightning Special Edition does everything the original Lightning did and more besides. Generally speaking, the new program does it faster, often considerably faster, as the following comparisons will show.

To lend perspective, the Lightning Special Edition display handling has also been tested against that of an Elonex 386, one of the newest professional 32-bit PC-AT powerhouses. To make the test somewhat realistic, it must be understood that the Elonex has the latest generation 80386 processor, with a bus four times wider than that of the QL, a clock speed 2.7 times faster than the QL, RAM – zero wait-state at that – 1.5 times faster than the QL.

### Average

Comparing hardware speeds is always difficult; both the number of clock cycles taken per “average” machine code instruction and the power of this average instruction vary substantially between processor brands. All in all, the Elonex has a very substantial hardware advantage over the QL of about 15 times. Further, the Elonex was running under DR-DOS, a faster alternative to the more common MS-DOS. So how does the combination of the QL, the Clark Kent of the Computer world, and Lightning ROM SE fare against a really fast and expensive PC-AT?

The QL mathematical functions are very good and more accurate than needed for most calculations but Lightning SE has managed to accelerate them, too, as well as offering a programmable level of precision:

```
100 START__TIME=DATE
110 FOR X=1E-3 TO .999 STEP 1E-3
120 A=SIN(X) : B=COS(X) : C=
TAN(X) : D=COT(X) : E=EXP(X) :
F=LOG10(X) : G=LN(X) : H=
SQRT(X) : I=ASIN(X) : J=ACOS(X)
: K=ATAN(X) : L=ACOT(X)
130 END FOR X
140 PRINT DATE-START TIME
```

The foregoing benchmark, compiled with *Turbo*, produced timings of 55 seconds without the Lightning SE addition.



# 190K, 5,700-line text file with 40 percent characters in-line spaces

Machine	Time	Lightning	Source	Command
QL	559 sec	No	Memory	PRINT
QL	349 sec	Special Edition	3.5in disc	COPY
QL	297 sec	Original	Memory	PRINT
ST/QL	254 sec	No	Memory	PRINT
QL	246 sec	Special Edition	Memory	PRINT
PC-AT	151 sec	---	3.5in disc	TYPE
ST/QL	129 sec	Original	Memory	PRINT
ST/QL	103 sec	Special Edition	3.5in disc	COPY
PC-AT	94 sec	---	25mS hard disc	TYPE
ST/QL	73 sec	Special Edition	Memory	PRINT

# Same file with all spaces replaced by “.”

Machine	Time	Lightning	Source	Command
QL	1,051 sec	No	3.5in disc	COPY
QL	663 sec	Original	3.5in disc	COPY
ST/QL	536 sec	No	3.5in disc	COPY
QL	424 sec	Special Edition	3.5in disc	COPY
ST/QL	370 sec	Original	3.5in disc	COPY
QL	365 sec	Special Edition	Slave block	COPY
QL	257 sec	Special Edition	Memory	PRINT
PC-AT	143 sec	---	3.5in disc	TYPE
QL	137 sec	Special Edition	Slave/1ngZIP 4	COPY
ST/QL	110 sec	Special Edition	3.5in disc	COPY
PC-AT	94 sec	---	25mS hard disc	TYPE
ST/QL	82 sec	Special Edition	Memory	PRINT

# Screen performance summary:

## (A) Lightning Special Edition v Original Lightning on the QL

	Relative Speed
QL without either Lightning	1.00
QL with Original Lightning	1.71
QL with Lightning Special Edition	2.38

## (B) QL and ST/QL (each with Lightning Special Edition) v 386 PC-AT clone

	Relative Speed	Approx. Relative Speed adjusted for hardware
QL	1.00	5
PC-AT	2.67	1
ST/QL	3.25	5

# Notes:

(1) Lightning SE is tweaked to process spaces very quickly for obvious reasons. Hence two sets of measurements have been carried-out, the first with a typical text file and the second with the same file but with spaces replaced. The file was a complete UK STD/Town/County Index, originated in *The Editor* on the QL and transferred to a PC disc via *Xover* – distributed free with *Media Manager Special Edition*, *Solution* and *PC Conqueror*.

(2) Machine details are:

Machine	Processor	Bus	Clock	RAM
PC-AT Clone	80386	32-bit	20MHz	100nS
Sinclair QL	68008	8-bit	7.5MHz	150nS
ST/QL emulator	68000	16-bit	8MHz	100nS

(3) Lightning SE `1ngZIP` command enables extra-fast scrolling, up to a factor of 32 times faster than the standard QL; in normal usage you would expect far lower speed-ups. Unlike its predecessor, `1ngZIP` also allows smoother, pixel-level scrolling. The fastest of the slow pixel-scrolls is marginally faster than the standard QL scroll. The slowest of the pixel-scrolls can be described only as flowing rather than scrolling.

(4) Non-standard line gaps are possible – selectable with pixel resolution – and the pitfalls associated with performing them by any other means are circumvented.

graphic plotting, triumvirate acquits itself very well. A simple 10,000-point-plotting benchtest yielded QL times of 176 seconds without, and 40 seconds with, Lightning Special Edition, a speed increase of 4.4 times. On the ST/QL Emulator, Lightning SE speeded the same program even more, by 4.7 times.

Keywords present in original Lightning are: `1ngON`, `1ngOFF`, `1ngGRAF`, `1ngZIP`, `1ngNOMODE`, `1ngDOMODE`, `1ngGOOD`, `1ngBAD`, `1ngKEYSET`, `1ngPREC`, `1ngFPREC`, `1ngFONT`. Additional keywords: `1ngINIT`, `1ngLINEWANGLE`, `j1ngINC`, `1ngASQDOS`, `1ngASLNG`.

The keywords allow individual control of a wide range of parameters. You do not need to know anything about them unless you wish to get more from the system than just acceleration but, is you are what DP terms a ‘knob-twiddler’, you have found paradise.

`1ngINIT` switches on the ROM. `1ngON` activates text acceleration and enhanced cursor navigation and screen handling. `1ngOFF` does the opposite. `1ngGRAF 1` activates fast graphics, 0 switches them off. `1ngZIP` has been mentioned earlier. `1ngNOMODE` and `1ngDOMODE` provide ways of altering the way the MODE command is handled. `1ngBAD` is not an insult but a directive to treat the program(s) being accelerated as being suspect in their adherence to correct Qdos protocol: `1ngGOOD` is the default. `1ngKEYSET` permits a call-up key of your choice for the drain command to be specified. `1ngPREC` and `1ngFPREC` permit fine-tuning of computational precision. `1ngFONT` allows fonts to be loaded and used from SuperBasic.

`1ngINIT` switches on the ROM. `1ngLINEWANGLE` allows fine-tuning of line lengths to ensure either coincidence with Qdos or absolute accuracy. The last three extensions allow non-integral line spacings to be used.

# Redecorate

If you would like to re-decorate or even overhaul the programs you run, *Channelmaster* will allow you to do this and much more. This new utility is included in the Lightning Special Edition kit.

Channelmaster allows you to alter dynamically at will the parameters – fonts, ink, paper and strip colours, horizontal and vertical character separations, window size, shape and position, border width and colour – of every single channel owned by every single program running on your QL.

The first four parameters are the most sensible ones to alter. If you are disenchanted with the way, say, Quill looks, you can choose your own fonts – you have 84 on the Lightning SE disc – to suit every single window Quill uses – for menus, options, text, commands, help and so on –

nal routines and 33 seconds with them, a speed increase of 67 percent without loss of accuracy. If about four-and-a-half digits of accuracy – which is more than four figure log tables give – is acceptable, the figure with Lightning Special Edition is 21

seconds, a speed increased of 2.6 times.

Setting the software precision switch to 1 provides an accuracy to two-and-a-half digits and a benchmark of 15 seconds, 3.7 times faster than without Lightning SE.

The third member of the Lightning SE,



and choose your own colours, too. Quill will never feel the same again. Channelmaster is one of the most "fun" programs I have seen in a long time.

On test, Lightning SE is fully-compatible with Qdos, Taskmaster, QRAM, QPTR, *Minerva*, *Toolkit II*, all versions of the Thor, the ST/QL emulator and every program and utility I tried. Any minor anomalies present with the original Lightning seem to have vanished.

When programs are run with Lightning switched on, the only difference you will notice is that they run much faster; there is no other alteration to their operation. Lightning Special Edition is an efficient system accelerator.

Those considering *Minerva* and Lightning SE may feel that they must make a mutually exclusive decision to have one product or the other. This is not so. The two products are complementary.

Minerva sets out to correct many of the original shortcomings of the QL operating system and to increase its functionality. Lightning Special Edition sets out to accelerate system operation massively; it, too, extends the QL features, albeit in ways Minerva does not. The only overlap between the two is a minor and harmless one in the area of graphics – LINE, ARC, FILL and so on – where Lightning SE is about 10 percent faster than Minerva.

Minerva is a ROM chip which replaces

the QL internal ROM-based operating system. To install Minerva, you must unscrew the QL case. In contrast, the Lightning SE ROM fits into the ROM port on the back of the QL, the side where the power lead is plugged in.

There are no complications in connecting, running and benefiting from Minerva and Lightning Special Edition simultaneously; Lightning treats Minerva exactly as it treats any other QL ROM version.

When you buy a copy of Lightning SE you are supplied either with ROM plus disc – you get both – or ROM plus microcartridge – you get both. Everything on the ROM is also present on the second medium. So if your ROM port is already occupied, say by *ICE*, use the disc or cartridge instead.

## Addiction

When Lightning Special Edition is installed from ROM instead of disc or microcartridge you gain an additional 10 percent in speed, over and above what Lightning SE already provides; you get instant installation, though loading from disc takes only two seconds; you save about 17K or RAM compared to the "big" version of Lightning SE text/screen routines.

The small version uses as much RAM as the ROM – less than 5K. Lightning Special Edition works on expanded and unexpanded QLs, with or without disc drives or

hard disc. Because of the compromises made during its design, the QL is nowhere so fast as it could be. Lightning Special Edition accelerates QL operation as nothing else does and represents a substantial improvement in speed over the original Lightning. Acceleration of more than 10x is achievable and 2x-4x is typical.

Notwithstanding the tremendous advances made in computer technology in the six years since the launch of the machine, it cannot be other than significant that the QL equipped with Lightning Special Edition can improve 40 percent on the speed of a top-line PC-AT running on hardware 1,400 percent faster . . .

The bundled utilities like Channelmaster, null handler, smooth scroller are ones for which you might expect to pay £10-£15 each and the 84 QL fonts supplied – providing as they do endless opportunities for use with your favourite programmes – would alone justify the price for the whole package. The A4 manual is clear, concise – 44 pages is concise by DP standards – and is designed for beginners.

I could not fault Lightning Special Edition on anything. It is a clear winner and a best buy at £49.95.

### Information

**Program:** Lightning Special Edition  
**Source:** Digital Precision Ltd, 222 The Avenue, London E4 9SE, tel: 01-527 5493.

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# USING PROFESSIONAL PUBLISHER

Bryan Davies approaches with care a versatile and complex program.

**D**esktop Publisher is not the kind of program most users will need every day. It is specialised and one consequence is that it is, for me at least a more difficult program than some to get the grips with. The same could be said of its predecessor and of what used to be its main competitor, *Front Page* in its various versions. In my brief forays into DTP I have struggled with about five versions of these programs and have not developed any fluency with them yet, so it can truly be said that the pointers given are from a beginner's viewpoint.

One oft-repeated point before dealing with the program. Saving and making backup copies at regular intervals becomes more and more important as the file being worked on takes longer to create. The nature of DTP at its present stage of development is such that changes which scarcely alter the screen appearance can take a long time to make. A few lock-ups, or introducing unwanted marks on the screen by pressing the incorrect key when you have been slaving for half an hour or so each time should convince you to save regularly in future. Why wait for the lesson? Saving is a slow process but so is designing a page; use the spare time to read the manual again.

The one obvious feature a DTP program has which is not provided adequately by a QL word processing program is the ability to include graphics on the page and it seems rather pointless using a DTP program of this type on its own. It can be done but the results would not do full justice to the program and might be achievable with a WP program anyway.

In my use of Professional Publisher I have found the graphics programs *ArtIce* or *Eye-Q* to be a necessary adjunct. *Eye-Q* is a very capable program for producing pictures to enhance and enliven the published page. It has one obvious major disadvantage for me and that is related to the general QL problem of not having a standard mouse and interface.

How do QL users manage to produce graphics without a mouse? It would never occur to me to try and use a graphics program on the PC without a mouse. Not having a suitable mouse for *Eye-Q* caused me to use the almost forgotten *ArtIce*, a simple graphics programme which works with and was designed from the start to work with the Ice mouse.

The remaining leg of the tripod of DTP is a reasonable text editing or word processing program. The two obvious choices are *The Editor* and *text*<sup>87</sup>. If your DTP page has few words and they are in a variety of sizes, PP can best handle them on its own but large portions of text need to be produced in the other program and imported into PP.

There are two obvious styles of page which most users might wish to produce — what I would call the cover or advertisement page and the article page. Both are likely to include graphics but the cover or advertising type will generally have much less text and will make use of more text sizes and styles.

The article type usually will be composed of several columns, with all the problems of appearance they cause. A sample of each type is given here. Figure one is a reconstruction of the cover of the *QL World* December, 1989 issue and Figure two is, similarly, a reconstruction of page 40 of the same issue. They are not intended to be exact copies.

To emphasise that comments here are aimed strictly at beginners it should be noted that no attempt was made to "customise" the program; the fonts used are there when you start your working copy of the program; the manual was read through once or twice and much of its contents promptly forgotten and a long-standing offer of a tutorial was declined.

## The Cover

Logically, the first step should be to do a rough sketch of what the final page is to look like; then, mentally, lay out the steps for assembling the various sections of the page. You have a grid on the PP screen which allows reasonably accurate placement of the different sections and the screen picture is marked with the dimensions of an A4 page to guide you. Starting with a clean page, you are also free to use the cut-and-paste function to move round the graphics images before adding the text; in this example the graphics image is so big that it needs to be located first, but that is not the case with small, insert images.

In the example, being of uncertain mind concerning how PP would react to an *ArtIce* File, I first went to the latter program and drew a rough freehand sketch of the spanner which dominates the December

cover. After creating a blank PP page, by accepting the default options from the main menu, the next step was to <Load a Picture>. Using the <SBYTES> option that worked without a hitch. The picture was created in the eight-colour QL mode but was purely black-and-white at this stage; it loaded in Mode 4 black-and-red, so the first step was to press ESC and select the <Textures> option, then <Mode 8 Texture>, which returned the picture to its original colour.

The point here is not so much to get back from red to white but to permit some shading; without use of the Textures option everything would be just black or white, which is inappropriate for a three-dimensional object such as the spanner. If you now proceed to mark opposite corners of an image which occupies the whole width of the screen, some of it will be lost when it is pasted into the page, because the area into which the paste is made is narrower than a full screen — 400 pixels rather than 512.

In addition, if you want the picture to occupy most of the page you will be disappointed, because it will appear in only a small area of the page. After some investigation it seemed sensible to treat the image as consisting of separate pieces — the open end of the spanner, the "2" at the other end and the bridging piece with its inlaid QL.

The graphical editing facilities of PP are not sufficient to allow you to be thoughtless when creating the initial image. If you get proportions or scaling incorrect there is only limited improvement you can make once the image has been transferred to PP. My first attempt at the spanner had the middle section angled much too horizontally, as a result of my making use unconsciously of the full screen width. PP does not allow the horizontal or vertical scale to be changed on the whole image but you can do so on half an image; some improvement in the scaling of the separate images was possible to using the <Magnify> and <Reduce> options.

Putting the spanner open end into the right half of the screen, and selecting the <Magnify/Right Half> option, then the <Reduce/Horizontal> option, produced roughly the correct size and inclination. The same procedure worked on the "2" also, as it could be treated as the <Left Half> of the image. The original "2" proved too narrow and it was widened by



# QL WORLD

## YOU CANNOT MEAN ...

A beginner's guide  
to Toolkit 2



means of <Mode Line> to build the edge in black gradually by a series of adjoining arcs. The order in which you use Magnify and reduce has a considerably effect on the resultant image and you need to be prepared to make several attempts at producing the desired image.

It is certainly preferable to get the image close to the desired form when in the graphics program but it depends very much on the manipulative capability of the graphics program, and your drafting skill, how far you can go towards the desired result. PP allows useful changes to be made easily but not gross adjustments, or ones on the whole image.

Beginners might be unwilling to try an image on the page when it is in a rough condition, for fear that they will be unable to get rid of it when an improved version has been obtained. Make use of the <Page Globals/Clear Page/A Section of a Page> option, as this allows you to clear as much or as little of the page as desired.

The bridge section between the open end of the spanner and the "2" may look the easiest part to do. It could have been

created in the graphics program and inserted between the other two sections but there was the problem of aligning it correctly with the separate sections. As line drawing is one of the PP facilities, the bridge was added after the other two sections has been completed and located properly. This again highlighted the need for a mouse when doing graphical work; my mouse will not work with anything other than Ice and its associated programs, making it impossible to use the freehand brushing technique to fill-in the black area either side of the inset QL. Some other users may have a better technique for handling such a task but what was done in the end was to use the <Mode Line> function. One end of the line was anchored on the "2" or open end, taken to the other end, and a line drawn. The second end of the line was anchored on the "2" or open end, taken to the other end, and a line drawn. The second end was then moved only slightly, using the

## FANCY STUFF

### Which program?

That depends upon how fancy you want to get, but don't abandon your old faithful without giving it a full investigation. Chances are, you use Quill, and there is a fair amount of potential in that. Have a look at the print sample in FIGURE 1. It is of a piece of text prepared with Quill; to save space, we have not included the prints of the same text prepared with *The Editor* and *Text87*, but they look essentially the same. The text is (partly) in 2 columns, there are 2 basic character fonts, with 6 horizontal character pitches, and 3 character-style enhancements. Another 2 pitches could be added, but were not incorporated into all the printer-drivers used. All these can be produced on many dot-matrix printers, and any of the programs mentioned (except *Professional Publisher*) can provide the

**Bryan Davies looks at the potential for mixing fonts and doing typographical tricks on Quill, The Editor and Text87.**

required printer-driver information to do this. The reason for the latter program being the odd one out here is that it prints everything in graphics mode, using its own character fonts instead of the printer's own fonts; careful selection of fonts from those supplied with the program could result in a print similar to FIGURE 1.

There was not a lot to choose between the prints from the 3 programs, so, if mixed sizes and styles, together with simple

columns, is all you require, you don't have to look further than Quill, your "free" word-processor. However, I'd be a liar if I said I use Quill myself, for any job. Up to a point, it is not difficult to get simple "DTP" effects from Quill, but going beyond that point can entail tremendous expenditure of time and effort, and such frustration.

### Purpose

Having said that, the purpose of this article is to give some ideas on how relatively simple non-standard print effects can be obtained with any of these 4 popular programs, not to make recommendations about what to replace Quill with.

The text shown in the print is not at all "professional" — no-one with an eye for appearance is going to mix so many sizes and styles on one page — but it does illustrate how much mixing is possible. It is based on a translation of a German sales brochure, and formed the basis for the English version of that, so it is

Figure 1: text prepared with Quill.

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**'Do not abandon  
your old faithful  
without giving  
it a full  
investigation.'**

"real". Work backwards from your printer. How many basic fonts has it got? If you don't know what a font is, you are far from alone, and the word is abused quite a lot. As a rough guide to its use, a font is a set of printable characters, of a defined shape. That is, it will usually contain A-Z, a-z, 0-9, and punctuation marks etc.

Each character will have a specific design, which will detail features such as curvature of individual strokes (as the tail of a 'g'), relationships of descenders (parts below the line) to the body of characters, accentuation (as in a bar across the down-stroke on a 7), and presence or absence of serifs (the end-pieces at tops & bottoms of characters). The size of the overall set need not be specified, but the relative size of each character to the others will be. There can be enlarged and condensed versions of the same



CTRL key with a cursor key, and another line drawn, and so on; thus, a series of radii of a circle were drawn to create a sector of black.

The line was then anchored at the other end and the same process followed, until the desired area was filled with black. No apologies are made for the rather sketchy QL; it would have been possible to draw all the keys and Mode Line but putting the characters on the keys would have been an effort and I would have celebrated another birthday or so in the process.

While DTP is a wonderful thing, there is no sense in trying to do every part of a page make-up job with the computer when some jobs can be done much faster in the old-fashioned way; in this case, Letraset could have been used to add the keyboard with relatively little effort.

The creation of the text on the cover was generally straightforward and should need little comment. The large "QL" was created using filled circles and boxes; the capitals on the bars on the "L" are circles and the bar on the "Q" is an ellipse. Some experimenting was done with default fonts but the appearance was too ragged. It is more important than ever to save frequently when making tests like this, as there is a danger of overwriting something else — e.g. the spanner; the Undo command works only in certain modes.

The "WORLD" was typed in <Mode Font> and it needed many attempts to get it even partially satisfactory. It would look better if it had been created in the same way as "QL" but that would have taken far too long. At first sight, the cut-and-paste option is not available if you want to move a block of text from one place to another on the page; the manual reference to this facility is concerned with inserting pictures.

## Moving

The text from "FLASHBACK" down needed moving up to make room for the bar-code block and it was a simple operation using the <Save> option, and saving only the text which needed moving it had to be done in two blocks in this case. It was just a matter of moving up the cursor slightly to put in the required position.

The barcodes at bottom right were straightforward but tedious to add. A piece of sticky tape placed on the screen ensured that the alignment of the tops of bars was reasonable. As this did not work well enough the top ends were trimmed by using the delete function in <Mode Font>, to run from side to side, just skimming the tops; if you do this, make sure the character size is the smallest possible, or there is a danger of removing too much of the bars and some of the characters above, if the "T" cursor is too high. Do not check my bars — they will not match the numbers.

One major weakness of text production by graphical means on the QL is the poor shapes of characters, especially when

they are enlarged. The jagged edges do nothing to create a professional appearance. If it matters sufficiently you can go through a page such as this cover and smooth the edges, using the <Mode Line> function, as was done on both figures. It is fairly easy to draw lines down the straight edges of characters but rounding-off the curved parts is more difficult.

The <Mode Font> function can be used to remove unwanted patches of "ink", by means of the standard QL delete keying, although this process needs care because the deleted area has square corners. Similarly, the square cursor in <Mode Draw> can be used for deletion with the Space Bar, if the Colour is set to that of the background. Perhaps, one day, we will have vector instead of bit-mapped graphics; shapes are then created by formulae rather than square by square and enlargement of fonts does not cause degradation of character shapes.

*The next part of the article will deal with a page which is all text but with some need for the <Mode Draw>, <Mode Line> and <Mode Font> functions.*

On the cover the picture took most of the time. The manipulation required in both the graphics and DTP programs was fiddly and time-consuming and it took several attempts to get an acceptable result. The article page, on the other hand, is mainly text, with a few graphical effects such as blocks and boxes. The bulk of the text is in a simple QL-like font, with no enhancements, and that meant that loading it onto the page was basically a matter of marking the areas to hold it, then feeding it in, piece by piece, from a word processing or editing program. The Editor was used for this job.

Side-tracking somewhat, this is an interesting example of how much flexibility there now is in QL software. The page was part of an article on basically the same subject — creating fancy text effects — and it was written on a PC, not the QL. The reason was the practical one that it was more convenient to leave the QL free for doing the work which was being written about, which was creating a sample page of mixed-size text in Quill, The Editor, Text<sup>87</sup>, and Professional Publisher.

Task — switching is very useful but there is a fixed amount of memory to hold the tasks — about 830KB on my system — and you cannot get more than about three major programs, with their documents, into this space, so it was not feasible, partly from a time point of view to do the writing and generate the material at the same time on the QL.

The two systems stand side by side and the screen of the QL can be watched while typing into the PC. In fact, the article has been started in text<sup>87</sup>, then transferred to WordPerfect on the PC by means of the QDOS-to-MSDOS conversion utility DISCover; to add to the number of stages in the overall operation, this one page was then transferred back to The Editor by

using another conversion utility, XOver. Including Artlce, that brought the total of programs used in the preparation of the two articles to light.

Professional Publisher takes a good deal of learning and it is not a program which allows itself to be rushed. You really have to devote yourself to it for hours at a time and take a relaxed attitude to page production but it has no competition. Only the individual user can judge whether or not the quality of the output justified the effort put into achieving it. No attempt was made to investigate the multitude of fonts supplied on the PP disc; obviously, a serious regular user would be wise to check them and list and obtain samples of the most suitable ones.

## Newsletters

As one who spends most of every day doing something with computers. I must admit the gradual appearance of these have recognisable pages was, to my surprise pleasing but I do not doubt that whoever did the cover of the December issue took much less time for a much better result than I did. No doubt the average user wants to produce newsletters, church magazines and the like; without spanners, they could be done much faster.

The examples shown are taken from the standard printout of Professional Publisher, using four passes of the print-head on a 9-pin DMP and the interpolation option — the latter made no obvious difference. If your printer has an adjustment for head position it might be worth experimenting with this but only in small increments as there may be a possibility of damaging the head if it is brought too close to the paper.

On my DMP, the best position for the head seems to vary with different ribbons and with the amount they have been used; the "1" setting — closest to the paper — sometimes gives better results than the recommended "2". the "standard" option was used for page size but, in some respect, the smaller prints given using the "condensed" options give sharper characters and may be more acceptable for newsletters.

If this is to be done and the newsletter paper is of a fixed size you will need to work back from the size and calculate the necessary <Page Dimensions> settings before you start composing the page proper. Put some text at the corners of the page and see how they print-out with the condense settings. You can improve appearance by photocopying the printout and perhaps reducing the size at the same time. This tends to smooth the jagged appearance of characters, and may improve the contrast, too. A check made using the version of graFix supplied with PP showed no improvement and gave an inaccurate length of print down the page but a new version of graFix should be available before too long and that may give better results.



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## CODE BREAKER

By M. T. Edwards

**T**his SuperBasic program illustrates a variety of methods for encoding messages, chosen by the first three items on the menu. You have to select one of these three types of code and either "ENCODE" or "DECODE" to get past the menu. Your selections turn green; they can be de-selected by pressing ENTER again.

In the first coding process, "DIRECT TRANSPOSITION", the computer replaces each letter in the message with a letter a specific distance away in the alphabet. Thus A could be replaced by C, B by D and so on. In the second instance, "REVERSE TRANSPOSITION", each letter in the message is replaced by a letter a specific distance away in a reversed alphabet — A being replaced by X, B by W, for example. Both codes are very easy to break by trial and error and it is scarcely worth using any more sophisticated code-breaking approach on them.

The computer will perform the task if requested; choose either DIRECT or REVERSE, then DECODE, from the menu, and type in "ALL" for it to go through all

the possible decodes. All this is child's play for a computer but one simple refinement makes these transposition codes infinitely more difficult to crack the use of codewords.

A codeword (KEYWORD) is an easily-memorable key to a series of codes which are slow and error-prone if done by hand. As an example, the keyword "code" could be used: the first letter of the message is transposed to the O code, the third to the D code and the fourth to the E code. The cycle repeats when the fifth letter of the message reverts to the C code.

Such codes are clearly slow but by no means impossible to break and much more the metier of the computer than the human brain. The keyword produces more complex code the longer it is and could even be a sentence. Beware of well-known sentences; to choose "To be or not to be, that is the question" as a keyword would be foolish. When more than one word is used as the

KEYWORD the program at present requires there to be no spaces between the words when typed-in.

The third type of code illustrated is the table, in which every  $n^{\text{th}}$  letter of the message is selected and written in sequence. "Jack" in a table of two becomes "Jcak". Reading down the columns in the table the computer produces of an encoded message will give the original message. Again, it is not difficult to break, though there is no "ALL" command this time — you have to exert a little more effort to crack this type of code.

Notice that your coded message does not have to follow exactly the guidelines given by the QL. You could start bottom right and read up each column moving left. You could alternate starting at the top of one column, the bottom of the next, and so on. There are other possibilities which it would be possible to program in by someone with sufficient energy.

Note that the program has a reason for telling you in red the number of horizontal elements in the table of a message; this and not the number of vertical elements — it is the number you need to decode the message. It would also be possible, at the cost of an extra line or two, to program otherwise and use vertical elements for both for encoding and decoding.

What do you have to do if you want to make a code which it is really difficult to break? That is the point of having several systems en suite. Put "the house that Jack built" into a direct transposition code, say G; then recode the result by reverse transposition using a short keyword like "smiley"; then tabulate that code in five vertical elements.

You have a coded message which only someone with the clue "G.Smiley" (MI)5" can break at all easily. Of course, if your enemies have a really big computer at their disposal, it probably is not worth bothering.

This simple program illustrates the power of the computer in dealing with codes — the QL can "break" simple transposition code, either direct or reversed, in seconds.

```

100 MODE 4:WINDOW 512,256,0,0:PAPER
0:CLS:OPEN#1,scr_448x200a32x16:CLS:REMark
default F2 screen
110 DATA "DIRECT TRANSPOSITION","REVERSE
TRANSPOSITION"," TABULATION SYSTEM ","
ENCODE "," DECODE "
120 PAPER 0:CLS:WINDOW
336,136,88,16:CLS:BORDER 2,2:CSIZE 2,0:
130 UNDER 1:PRINT"ALPHABETIQL
ENCODER/DECODER":UNDER 0
140 initialise
150 menu
160 DEFine PROCedure initialise
170 type=0:process=0
180 DIM abc$(26):DIM abc1$(52):DIM
abc2$(52)
190 DIM code$(26):DIM origin$(52):DIM
work$(52)
200 DIM alpha$(52):DIM menu$(5,22):DIM
message$(500)
210 RESTORE :FOR k=1 TO 5:READ
menu$(k):END FOR k
220 abc$="ABCDEFGHIJKLMNPOQRSTUVWXYZ"
230 abc1$=abc$&abc$
240 FOR k=1 TO 52:abc2$=abc1$(k)&abc2$:END
FOR k
250 END DEFine
260 DEFine PROCedure menu:type=0:process=0
270 PAPER 0:CLS:WINDOW
336,136,88,16:CLS:BORDER 2,2:CSIZE 2,0:
280 UNDER 1:PRINT"ALPHABETIQL
ENCODER/DECODER":UNDER 0
290 INK 4:PRINT" SELECT
PROCESS":INK 7
300 FOR k=1 TO 5:PRINT TO 3; menu$(k):
NEXT k
310 INK 4:PRINT" to position"
ENTER to select" ESC when
ready":INK 7
320 bar=4:AT bar,3:PAPER 2:PRINT
menu$(bar-3):PAPER 0
330 WINDOW#2,180,20,194,160
340 REPeat loop
350 dif=0:i$=INKEY$(-1)
360 KEY=CODE(i$)
370 SElect ON KEY
380 =27:IF process AND type:EXIT loop
390 INK 2:PAPER 0
400 IF NOT process:PRINT#2"Select
encode/decode"
410 IF NOT type:PRINT#2"Select one code
type"from the three shown"
420 =10:dif=0
430 IF bar INSTR"456" THEN
440 IF type
450 IF type=bar:PAPER 2:INK 7:type=0:
END IF
460 ELSE
470 type=bar:PAPER 4:INK 0
480 END IF
490 ELSE
500 IF process
510 IF process=bar:INK 7:PAPER 2:
process=0:END IF
520 ELSE
530 INK 0:PAPER 4:process=bar
540 END IF
550 END IF
560 AT bar,3:PRINT menu$(bar-3)
570 INK 7
580 =216:dif=(bar>3 AND bar<8)
590 =208:dif=-(bar>4 AND bar<9)
600 END SElect
610 INK 7
620 IF process<>bar AND type<>bar:AT
bar,3:PAPER 0:PRINT menu$(bar-3)
630 bar=bar+dif:IF bar<>process AND
bar<>type:AT bar,3:PAPER 2:PRINT
menu$(bar-3)
640 END REPeat loop
650 type=type-3:process=process-6
660 SElect ON type
670 =1,2:transpose
680 =3:tabulate
690 END SElect
700 END DEFine
710 STOP

```



```

720 DEFine PROCedure cl_scr
730 OPEN#3,con_224x200a32x16:
BORDER#3,2,2:CLS#3:all=1:posn=0:keyword=0
740 OPEN#4,scr_224x200a256x16:
BORDER#4,2,2:CLS#4
750 CSIZE#3,0,0:CSIZE#4,0,0
760 CSIZE#3,2,0:CSIZE#4,2,0:INK#3,7:
INK#4,7:UNDER#3,1:UNDER#4,1:PRINT#3,
"ORIGINAL MATERIAL":IF process=1:
PRINT#4,"ENCODED MATERIAL":ELSE
PRINT#4,"DECODED MATERIAL"
770 UNDER#3,0:UNDER#4,0:CSIZE#3,0,0:
CSIZE#4,0,0
780 END DEFine
790 DEFine PROCedure transpose

800 REPEAT loop0
810 cl_scr
820 PRINT#3\\"Letter to which 'A' is to
transpose?"\('ALL' or Keyword)":INPUT#3:
start$:IF start$=""$60 TO 820
830 IF start$="all":all=26:start$="b"
840 a$=start$:keyword=LEN(start$):
key$=""$IF all=26:keyword=1
850 FOR i=1 TO LEN(a$)
860 u_case:IF ok:key=key$&start$:ELSE GO
TO 820
870 END FOR i
880 start$=key$:IF
type=1:alpha$=abc1$:ELSE alpha$=abc2$
890 IF keyword=1:start=key$ INSTR alpha$:
code$=alpha$(start TO start+25):origin$=
alpha$:IF process=2:code$=alpha$:origin$=
alpha$(start TO start+25):END IF

900 IF keyword>1:origin$=alpha$(1 TO 26):
code$=origin$
910 IF keyword>1:PRINT#4\\"Keyword:
";:ELSE PRINT#4\\"Code-letter: ";
920 PRINT#4:key$
930 PRINT#4\\"Original: ";origin$(1 TO 26)
\\"Becomes: ";code$\\
940 work$=code$&code$:p=0:IF keyword>1:q=1
950 INK#3,4:INK#4,4:PRINT#3\\"Enter text
(** to exit)":CSIZE#4,1,0
960 REPEAT loop1
970 INPUT#3"> ";a$:IF a$=""$60 TO 970
980 IF a$="**":EXIT loop1
990 FOR k=1 TO all

1000 FOR i=1 TO LEN(a$)
1010 IF keyword>1:p=CODE(key$(q))-65:q=
(q+1 MOD keyword)-1:IF process=2:p=26-p
1020 u_case(a$(i))
1030 b$=a$(i):IF ok:posn=a$(i) INSTR
origin$:b$=work$(posn+k+p-1)
1040 PRINT#4;b$:
1050 END FOR i
1060 PRINT#4
1070 END FOR k
1080 END REPEAT loop1
1090 INPUT#3\\"R to repeat, M for
menu"\i$:IF i$=""$60 TO 1090

1100 CLS#3:CLS#4:IF i$="m":menu
1110 END REPEAT loop0
1120 END DEFine
1130 DEFine PROCedure
tabulate:INK#4,4:row=2:col=0:scr1=0
1140 REPEAT loop0
1150 cl_scr
1160 ptr=1:message$=""$pp=1:start=1
1170 IF process=2
1180 INPUT#3\\"Horizontal elements in
table?"\a$:IF a$=""$60 TO 1180
1190 FOR i=1 TO LEN(a$)
1200 IF NOT a$(i) INSTR "0123456789":
60 TO 1180
1210 END FOR i
1220 v=a$:IF v<2 OR v>17:60 TO 1180
1230 PRINT#3\\"Matrix of ";h;" horizontal
elements"
1240 ELSE
1250 INPUT#3\\"Approximate number of
characters A-Z in the text?"\a$:IF a$=""$
60 TO 1250
1260 FOR i=1 TO LEN(a$)
1270 IF NOT a$(i) INSTR "0123456789":
60 TO 1250
1280 END FOR i
1290 no=a$
1300 SELECT ON no
1310 =1 TO 72:no$="0217"
1320 =73 TO 144:no$="0417"
1330 =145 TO 288:no$="0817"
1340 =289 TO 486:no$="1617"
1350 =REMAINDER :no$=""
1360 END SELECT
1370 IF no$=""
1380 v=17:h=27:PRINT#3;"The text must be
entered a page at a time. Conclude each
page with ! to clear the screen."
1390 ELSE
1400 v=no$(1 TO 2):h=no$(3 TO 4)
1410 m=h*v
1420 INPUT#3\\"Vertical elements in the
table "&v&"-"&h&" ,or E for
equilateral?"\a$:IF a$=""$60 TO 1420
1430 IF a$="e"
1440 h=INT(SQRT(no)):h=h+(no DIV h>0):
v=h:PRINT#3\\"v";"x";v;" matrix = ";v*h;"
1450 ELSE
1460 FOR i=1 TO LEN(a$)
1470 IF a$(i) INSTR "0123456789"=0:
60 TO 1420
1480 END FOR i
1490 value=a$:IF value <v OR value>h:
60 TO 1420
1500 h=INT(no/value):h=h+(no MOD
h>0):v=value
1510 PRINT#3\\"v";"x";h;" matrix = ";v*h;"
1520 END IF
1530 PRINT#3\\"ABS(h*v-no):" additional
characters will be\\"added to end your
text."
1540 END IF

1550 END IF
1560 INK#3,4:PRINT#3;"Enter text (! clear
page, ** exit)":INK#4,4:CSIZE#4,1,0
1570 REPEAT loop1
1580 INPUT#3"> ";a$:IF a$=""$60 TO 1580
1590 IF a$="**":EXIT loop1
1600 IF a$="!":pp=pp+1:CLS#4:INK#4,7:
CSIZE#4,0,0:PRINT#4;"Page ";pp:ptr=1:
INK#4,4:CSIZE#4,1,0
1610 FOR i=1 TO LEN(a$)
1620 u_case: IF ok:
message$(ptr)=start$:ptr=ptr+1
1630 END FOR i
1640 FOR i=start TO ptr-1
1650 row=2+(v+1)*((i-1) DIV (27*v)):IF
row+v>=20:EXIT loop1
1660 IF process=1
1670 AT#4,row+(i-1) MOD v,((i-1) DIV v)
MOD 27:PRINT#4;message$(i);
1680 ELSE
1690 AT#4,row+(i-1) MOD v,(i-1) DIV
v:PRINT#4;message$(i);
1700 END IF
1710 END FOR i
1720 start=ptr
1730 END REPEAT loop1
1740 IF row+v>=20
1750 INK#3,7:PAPER#3,2:PRINT#3\\"Page
full: R to repeat, M for Menu":INK#3,4:
PAPER#3,0:SCROLL#3,-10
1760 INPUT#3\\"i$:IF i$=""$60 TO 1760
1770 ELSE
1780 IF process=1
1790 IF ptr<v*h
1800 total=h:FOR i=ptr TO v*h
1810 AT#4,row+(i-1) MOD v,(i-1) DIV
v:PRINT#4;CHR$(RND(65 TO 90));
1820 END FOR i
1830 ELSE
1840 IF ptr>v*h
1850 dif=v-(ptr MOD v)
1860 total=ptr DIV v+((ptr MOD v)>0):FOR
i=ptr TO ptr+dif
1870 AT#4,row+(i-1) MOD v,(i-1) DIV
v:PRINT#4;CHR$(RND(65 TO 90));
1880 END FOR i
1890 END IF
1900 END IF
1910 END IF
1920 IF process=1:INK#3,7:PAPER#3,2:
PRINT#3\\"Final horizontal elements =
";total;" NB!":INK#3,4:PAPER#3,0:END IF
1930 INPUT#3\\"R to repeat, M for
menu"\i$:IF i$=""$60 TO 1930
1940 END IF
1950 CLS#3:CLS#4:IF i$="m":menu
1960 END REPEAT loop0
1970 END DEFine
1980 DEFine PROCedure u_case:ok=0
1990 IF a$(i) INSTR abc$:start$=CHR$(CODE
(a$(i))-32*(CODE(a$(i))>90)):ok=1
2000 END DEFine

```



# SOFTWARE FILE

## INFORMATION:

**Program:** Here We Go  
**Supplier:** CGH Services,  
 Cwm Gwen Hall,  
 Pencader, Dyfed, Cymru  
 SA39 9HA.  
**Price:** £10 disc or  
 Microdrive.

Rich Mellor goes to the match and finds more than a hint of realism.

Continuing is tradition for good adventures, CGH Services has recently acquired the rights to sell *Here We Go* – written using the ACT system from Digital Precision – published formerly by Impact Entertainments, which has now left the QL scene.

This adventure is billed by the opening credits as an “extremely wacky football adventure” and it is full of weird humour. Just try examining the poster in your bedroom; it is a tour poster for the group Metallica and is described as sounding like “a pleasant relaxing night out for the whole family.” There is not much of a football element involved and it should therefore appeal to many adventurers. So, if not football, what is the adventure about?

At the start, you are lying in your bedroom when you realise that the F.A. Cup Final is taking place this afternoon and, rather than watch it on television, you decide to try to get there to see it live. You have to dash out of the house, not even

having time to sit on the comfortable sofa and watch the build-up on BBC1.

On your way out you realise you have no money and, worst of all, no ticket. So, in case you have under-estimated your bank, you take time to examine the letter you have received recently. Unfortunately the letter is merely your new bank card – five years too late – informing you that your bank is to add an extra charge for sending you this letter using a penny stamp.

## Ticket

So the adventure really begins – how to get a ticket for the final, how to operate the ticket machine at the railway station, how to manage to pay the bank charges and, worst of all, how to prevent yourself being waylaid by all the diversions around you and then missing all chance of seeing the match?

The authors have adopted a pleasant style in writing the adventure and although they

seem to want to lead you up a few blind alleys, some of which contain other football fans who might sell you a ticket, many of the red herrings are reasonably well sign posted. The adventure contains a maze from which I have as yet been unable to escape but you are forewarned that you are about to enter the maze and can easily complete the adventure without having to negotiate it.

There is also a useful list of example verbs to be used which can be seen by entering INF – for information. It is perhaps a pity that the vocabulary seems a little limited in parts but that seems due rather more to the style the authors have adopted than lack of words; as you become more enmeshed in the adventure you will soon find it easy to discover those elusive words.

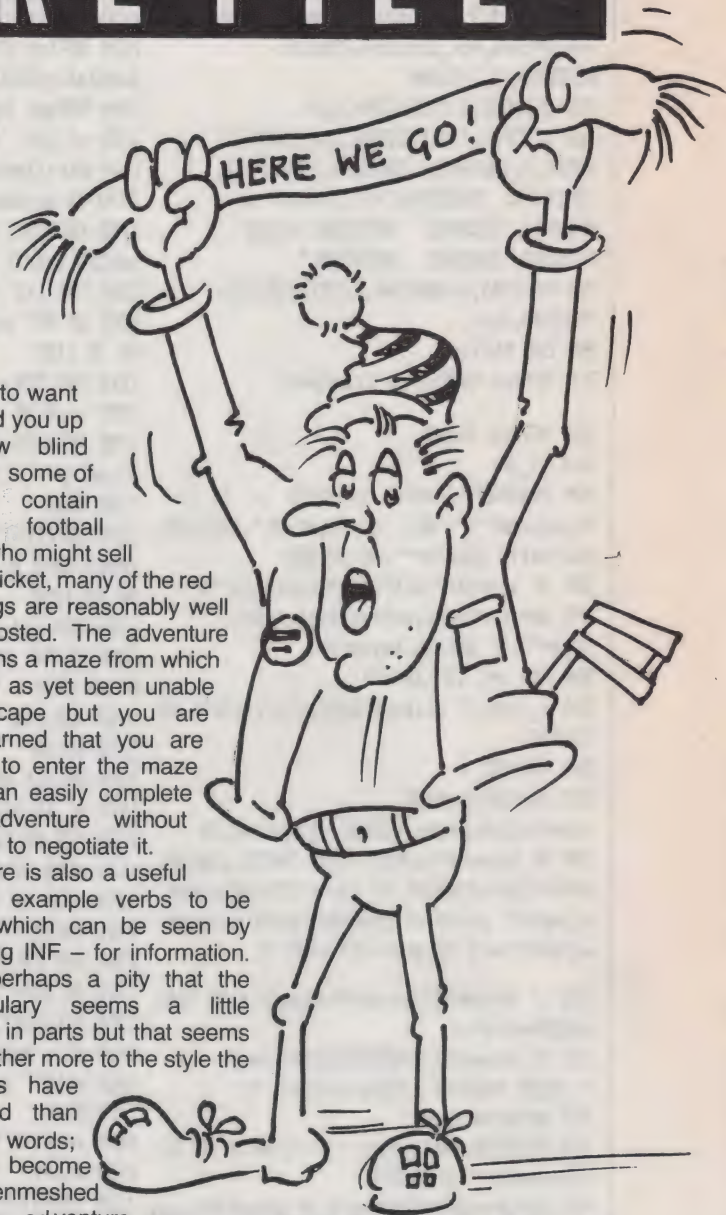
The adventure contains a wide variety of locations, ranging from the bureaucratic jungle of the local hospital to a very inhospitable police station – where they seem to think that every football fan is also a hooligan – and an old World War II air raid shelter. There is even a toll bridge for good measure; it is apparently operated by God since, if you cannot pay the toll, you are transported back mysteriously to the side of the bridge.

Perhaps the most interesting problem is how to shear a sheep – this is the third CGH adventure with a sheep in it – which tries to run away from you as soon as you put it down.

There is a logical solution to this problem, as with all of the others in the adventure, and there is no need to resort to sick humour to solve it.

Other interesting features include a flower which desperately needs watering – but there is no watering can; a guitar for you to pass the time at the crossroads; and the proverbial haystack.

Overall, the adventure is very good value and will certainly keep you occupied and entertained for a number of evenings. Unfortunately the cash dispenser is no easier to operate than in real life and, as per normal, when you arrive you have forgotten your PIN number. I suppose every adventure must have some hint of realism in it.



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If you get stuck and need some help Impact Entertainments will supply a hint sheet if you send a S.A.E. and £1.00.

GOOD LUCK!!!!!!

You are in a small bedroom. There is a huge poster on the wall and a neatly made bed in the corner of the room. The sun blazes through the window and you feel a tingle in your bones. To the west you can see a door.

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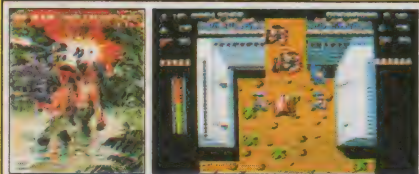
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The programme will run on a basic 128k QL.

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Over a period of time the package will become available on other popular computers, the object being that any combination of two computers may be used.

## The Scenario:

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The time taken to enforce the Exclusion Zone will be determined by the strategic skill of the opponents, certainly taking many hours to come to a conclusion.

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As the Fleet Tactical Commander you are responsible for:

The initial selection of sixteen ships; Independent control of each ship either by transferring to, or sending signals; Ship's deployment, navigation, damage control and armament control/operation etc.

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\* Submarines are able to dive and have an operational periscope.

Ship's Armament:

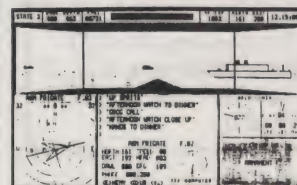
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## The Bridge:

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# SOFTWARE FILE

## TEXT<sup>87</sup> V3

### INFORMATION:

**Program:** text<sup>87</sup> v3.00

**Price:** £60 (upgrade from earlier versions £20-£25)

**Supplier:** Software 87, 33 Savernake Road, London NW3 2JU.

As part of our policy of keeping readers abreast of new developments in existing programs, the latest version of *text<sup>87</sup>* has been checked. Here are comments on the new and revised features.

*text<sup>87</sup>* has been under constant development since its first announcement and has gone from being full of potential, but barely usable, to being one of the most capable WP programs available for any microcomputer, and fully functional. The basic similarity of its command structure to that of the Psion programs gives Quill users a relatively easy introduction to it but there are so many more features than Quill has that many hours of practice are needed to get the best from it.

There is now one more major feature about which to learn — spelling checking. This function is, in fact, easy to use and should cause little difficulty for most existing *text<sup>87</sup>* users. It is a separate program, although that is not obvious when spelling is being checked, since the function is called-up as a normal menu item.

### Separate

Since the basic spelling checker file is separate it is desirable to integrate it into a start-up boot routine and this is done easily; it is loaded by LRESPR, if Toolkit II is installed on the system, or the basic RESPR / LBYTES / CALL sequence if not. When the spelling checking function is

requested initially, the main word list (dictionary) is loaded. Once the checker has been used, the space taken by the word list(s) can be freed for use by other programs, if necessary.

As the checking routine remains loaded the word lists(s) can be reloaded for further checking later. The list of words added as “new” during a session can be saved at any time without rendering the checker unusable, as happens with *SpellBound*. Most users will have come to *text<sup>87</sup>* from Quill or *The Editor* and may want to run through the checker files produced with those programs. This is no problem, as anything the program can load can be spell-checked. You can even check *FlashBack* \_DBA files. Such files may contain odd codes but they can either be by-passed, by moving the cursor past them in the files — checking starts from where the cursor is — or the checker can be told to ignore them one by one as they appear.

My complaints about lack of adequate fast spelling checking facilities on the QL should now have been dealt with and, by and large, they have. This checker works well, and fast. The only disadvantages from my point of view are really more in the nature of quirks which the user will either accept or find mildly irritating. The checker is basically Tony Tebby's *QTyp*, which was introduced after *SpellBound* and has several better features than that program; the main

advantage for many users is the ability to check documents retrospectively, at high speed.

A big plus point for European users is the inclusion at no extra charge of French and German word lists, along with the 40,000-plus words English list. As *text<sup>87</sup>* can be obtained with either French or German menu and message text it is not surprising that sales in several European countries have been good. Word lists for other languages are being prepared; Dutch and Italian versions are believed already to be available. Loading different word lists is straightforward, making it possible to check successive documents in different languages.

### Unusual

The user is provided with an unusual facility to add comments to words in a list. You could comment on the usage of a word or give a translation of it. Those comments appear below the normal status line when the words concerned are encountered in documents. A rather odd manifestation of this was that some fairly common words produced messages, apparently suggesting comparable words, and prompting the user to make a decision about what to do next.

An instance was the word “adapter”, as used with 3-pin electrical plugs, which produced the message <note! this word has the following meaning: man>. Think about that. The Collins dictionary offers the meaning “a person or thing

that adapts”, which equates adapter with man. Adapter must be in the main word list for the message about it to be shown but a new user could be baffled by having to press, first, ESC, then choose <Ignore/Browse/Add to word list> to get checking going again.

If Browse is selected the unknown word is not taken automatically to be the one in which the user is interested and you have to type-in a string to produce a list of words which contain it. The response to “Baud” was <note! this word has the following meaning: rate>. Again, the connection is there but you have to go through the formal process of, effectively, saying “yes, I know that”. The choice is yours; if this help process causes annoyance, do not put messages in the word list.

Words which are separated by punctuation marks, such as hyphens, can cause the checker to miss the second one of a pair if both are unknown. Where the first word is known the checker picks up the second immediately; otherwise it might be necessary to make a second run. If an apostrophe appears at the end of a word — “Jones'” or “Tebby's” — the checker indicates that it does not know the word; even if it is then added to the list, other instances will again be flagged as unknown but they have been accepted into the temporary word list.

There was no sign of note being taken of capital letters or full-stops, as they are in *SpellBound*. Some common words, typically plurals, are not recognised — e.g., “residents”, “drawbacks”, “refrigerators”. The Browse function allows you to look at the contents of the main word list but only in groups of about 20. That is, if the string “res” is entered, the words beginning with that string



are displayed out it is necessary to change the string to "ret" to go one letter further in the alphabet. It was not clear what happens if there are more than about 20 words beginning with the entered string.

There is no provision for telling the checker to ignore words, as is desirable if some "non-words" are repeated throughout a document. If codes such as "AB" are used for many items in a document you either have to key I for Ignore at every instance or add "AB" as a new word to prevent the checking process stopping at every instance. The main word list does not contain

with this checker. The time taken to find "unknown" words is short enough for most of the time taken in checking a document to be that spent hitting keys, to make decisions on what to do with the words. Put another way, if a 2,000-word document has no unknowns in it, checking will take about 10 seconds — more than 10,000 words per minute. One cannot reasonably ask for anything faster.

The features which were not thought desirable by me might not trouble other users. For various reasons, the original QTyp on its own did not seem to suit my style. The version

can be loaded into the spelling checker you have to dump whatever work you are doing and run the editor as a separate job.

The apparent reason is that the <WMAN> and <PTR\_GEN> files which need to be loaded may interfere with other tasks the user might normally have running. When an attempt was made to make these files part of a normal system boot procedure the boot initially stopped part-way through. Altering the position of the files in the boot made it usable but resulted in Q\_Switch, the switching program, being disabled, and its time, free memory and Caps Lock indicators being removed from the screen. In addition, all the free memory, except 2KB, disappeared. Users who enjoy resetting their QLs may love this feature but the rest will not.

A "selective-Global" search-and-replace is now available, as an alternative to the individual or fully-Global functions. Rulers which have been changed after a document has been created can be updated selectively throughout the document. If there are 10 instances of Ruler 1 in a document and you wish to change only five of them to Ruler 3, it can be done, using the <Doc/Ruler> option. Likewise, <Doc/Type> allows some, or all, instances of a particular Printype to be changed to another. That saves a good deal of time when changing printer

revision does not make this point.

Having been through a series of upgrades, it is difficult to be sure exactly what changes have been made and it is easier to state what features are now incorporated. Some changes have been made to the Features and Options, necessitating modifications if ALTKEY settings have been made to select particular typestyles.

## Information

An information line has been added below the normal command line, to give status reports on the currently-selected command. Use of the <F3/Context/Paras> command is now made easier by having the current <Decimal Tab/Length Unit/Memory Size/Storage and Printing> settings displayed. The <F3/Context/Fonts> command tells you the number of the last font loaded and whether or not the Autoload function is on. The messages are not always to the point; failure to load a file imported from a PC was reported to be due to lack of memory, despite the allocated memory being twice the file size, when the problem appeared to be that the file was not acceptable — reason unknown. The Editor loaded the same file without murmur.

The Status Line now carries a message indicating what the current area is — Text, Header or Footer. \_T87 documents

---

*"The user is provided with the unusual facility to add comments to words in a list . . . such as usage, or a translation."*

---

proper nouns such as Tony Tebby, Amstrad, Portland, nor abbreviations like MHz and PCB. That is not a specific criticism of this program; no program I have seen on QL or PC, regardless of price, has catered for everyday words of this nature. You can load any main or specialised word list at any time and the temporary word list created up to that point will stay usable.

The main word list having the file name (QTyp\_dictionary) is loaded automatically but you have to load your own special lists manually. This can be avoided by incorporating all generated word lists into the main one. There are obviously objections to doing this but I have done it from the early days of QSpell, through Spell-Bound and various PC programs, and do not expect to change my approach.

## Convenience

Unless you use a computer "just for fun", convenience — i.e., speed — is the name of the game and performing two operations when the job can be done with one has little merit. One final note about the spelling checker; one word on a menu — "dictionary" — and another in the main word list — "proprietary" — seemed to have escaped the checking process. Speed is almost a let-down

provided with text<sup>87</sup> 3,000 works well as a spelling checker but can cause problems when the word list editor is used.

During each session of checking a temporary word list is created. This is a text file containing all the words the user wants to add to the checker's vocabulary. Being a text file, it cannot be incorporated as it stands into the main word list nor into a user's specialist list. Some users would not want their lists to be added to the main one, anyway, but the snag is that the words in a temporary list will not be available during the next session unless the editor program has been run, to turn this list into a specialised one, or add it to the main one.

Creation of additional word lists is simple, as each word is typed as normal text on a single line and the editor is then used to convert the list to a file format usable by the checker. Unfortunately, the editor on the review disc did not want to work; presumably this problem will have been fixed by the time this review appears. Investigating the problem revealed how to get the editor working; it seems to do its job satisfactorily but it created another problem which is as yet unresolved. The manual advises running the editor from a re-set QL — when you want to turn a temporary word list into one which

---

*"An information line has been added below the normal command line, to give status reports on the selected command."*

---

drivers, as the Features and Options used may be different. The relative obscurity which has marked some commands from the start still exists; when an instance of a Ruler which you might want to change has been found, the message displayed is <Yes (esc) replace the ruler?> from which it might be construed that the only options are to key "y" or "ESC", but "ENTER" has to be keyed if you do not want to make the change at the current cursor position. The manual

can now be merged into each other; lack of this function was one of the more obvious omissions previously. Another big improvement is that pressing ESC during printing will stop the job in progress, allowing it either to be restarted or abandoned subsequently.

Identifying blocks of text to be printed has been simplified by making the cursor line the default starting point for Text. Movement by page through documents is now easier, with <Next page> and <Current



page> options, as well as <First page> and <Page number>.

A feature of earlier versions which irritated me was having to mark a block to save something as an Export file. Most of the time I wanted to save the whole file and kept forgetting it had to be marked first. Now you can save an Export file complete without marking it but blocks can still be marked to be saved on their own.

The deletion facilities have been enhanced considerably by making it possible to delete the last character on a line — with CTRL+right arrow or CTRL+SHIFT+right arrow — and “pull” the next line on to the cursor line, so that a string of characters in the middle of a block of text stretching over several lines can be deleted in one continuous operation.

The additional program *fountext*<sup>88</sup> — £25 extra — takes text<sup>87</sup> a big step closer to what many users think of as DTP. With the graphics printer driver from that installed you can load 37 fonts and have 32 of them active and displayed on menus. The other four can

replace any of the others, except the default font, if they are Attach-ed in place of them.

Graphics printing is far from slow, depending mainly on character height. With smaller characters, print speed is comparable with that on normal NLQ text but it falls as the character height increases. The character shapes are generally

*“The program file has increased in size by about 10KB . . . enabling the spelling checker takes about 90KB.”*

good and even the largest ones do not look really jagged.

Things which have not been changed include not being able to select Italics as a feature on its own. You can still choose italics only with a particular character style. There must be a philosophic difference here; to me, italics are no different from bold, underlined, superscript or subscript, in that the user might want any or all of those features together with any basic character style.


The fairly common character

size 8.5 characters per inch — enlarged-condensed Pica — is not catered for in the Canon printer drivers; this is the only one of numerous WP programs checked with my printer which does not support this size — but it did in earlier versions. You can still over-write an existing file if you forget that there is already a file with the

back-up copies and so on, I have found no other major WP programs on QL or PC which do not provide them and a program really does not seem “full-featured” without them.

The program file has increased in size by about 10KB, a modest increase by most standards. Enabling the spelling checker takes about 90KB, plus whatever space is required for any expansion of the main word list and for specialised lists. In addition, the checker requires about 6KB of reserved space when the program is loaded.

Whatever complaints one may have about version 3.00 there should be no doubt that it is an excellent program, well up to most word processing tasks, including those with a foot in the desk-top publishing door. It is easy to find faults, or shortcomings, in any program, but the additional cost of £15 over the earlier version of text<sup>87</sup> is a very small amount to pay for such a good spelling checker; when you consider the additional features in the program also, £60 is a remarkably low price.



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The first part of this article dealt generally with the subject of mixing character sizes and enhancements in text, with particular reference to using Quill and *The Editor*. This concluding part deals with using *text*<sup>87</sup> and *Professional Publisher* for the same job.

There are no apologies for using the expression WYSIWYG somewhat freely. The basic form of *text*<sup>87</sup> does not give a true WYSIWYG display unless you take the trouble to tailor the supplied fonts to look like your printer fonts and that is a major job in most cases. I would suggest going part-way. Load the supplied fonts which most closely match the printer fonts and sizes you use regularly; match character widths rather than appearance first, to give correct positioning on the screen.

Some simple customising of fonts with the *founted*<sup>89</sup> program enables widths to be adjusted where necessary; adding extra space either side of each character in Roman21 allows you to use the same basic font to represent both Enlarged Proportional Pica and Enlarged Pica.

### Default

The standard (default) font, being small, can be used to represent Condensed Pica. I use QL10 for 12cpi Elite and this means the screen looks familiar

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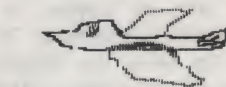
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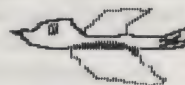
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switch, transparent  
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Figure 1. Using the *text*<sup>87</sup> graphic driver.

during most of my work. There are various other sizes of Roman and several of Antiqua to use for the other printer character sizes, without having unduly stylised characters on-screen.

If you are not particularly attached to a printer's built-in fonts you can go the whole way; buy *founttext*<sup>89</sup> and download all fonts from *text*<sup>87</sup> to the printer at print time, using the graphics printer driver. This gives you true WYSIWYG but not with columnar text.

Although columns print correctly, they are displayed in line aster on the screen, so you lose some of the feeling for how the print will look. As text appears correctly-spaced on the screen you can choose to do without columns and use the same technique as applies to Quill and *The Editor*, knowing that the displayed positions of text will be echoed on the print. Graphics printing is slower than text printing but this may be no great problem if documents are not large.



One of the pleasant things about text<sup>87</sup> is that the printer drivers are usually fully ready for use; there is no need for tinkering. On the other hand, if you wish to make changes you need an assembler program to do them and that puts alterations out of court for most people. In my case, the driver I have been using for some time does not support either 8.57cpi or NLQ, so I was unable to produce exactly the same printout as for Quill and The Editor.

To keep spacing the same, the proportional Pica equivalents were used in place of NLQ. The one line of 8.57cpi was on its own, so replacing that by proportional Pica did not make too much difference to the appearance. There can be alignment problems with the left edges of columns – but less than with Quill/Editor – if there are large changes in character sizes between two adjacent columns but very little of this was evident in this test.

text<sup>87</sup> has a column facility which can make life much easier. At present you can have only the one column set up in a document if you set Layout to form columns for the whole document. You can cheat a little by using the Header and Footer for one column sections of text and using the Text area for multiple columns. This approach makes printing a very slow process, because you have to specify the Header size and first line – likewise for the Footer if used – and the first line of the Text area also for each page. Having recently done a 110-page document this way I know how much effort and time is involved.

## Dilemma

In the sample used here, the text had three layout requirements which created something of a dilemma. The fact that the first column of condensed italic print extended to the right of the left edge of the lower column of Elite print meant that a four-column Layout would not work. The presence of two odd full lines of text between the two-column sections precluded the use of a multi-column Layout anyway. You could spread the words of those two lines over several columns but you get gaps of more than one space between words doing that.

What I chose to do finally was consider the text as being in three separate sections, two of which had their own Header and two-column Text area and the third one only a Header. The three sections were still in one file – it was just a matter of printing each section separately. This is possible because the text<sup>87</sup> printer driver accepts the printing of specified lines. To make this clearer, the text down to and including the line “Design Center” was composed using a Header for the top three lines, one being blank, and a two-column Text area for the two columns of condensed text below that.

From the line “Nipissing” – a place in

the U.S.A., by the way – to the end of the lower two columns was treated in the same manner, the first three lines being in a Header, the two columns in a two-column Text area. The bottom two lines were treated as another Header. Two Rulers were needed, one for the full lines, the other for the two-column areas. In the latter, two Tabs were set, because the columns were positioned unequally across the page. All columns except that at top left were typed with each line started by one or two Tabs.

## Alignment

When printing, the first section details were entered as Header length and first line, then first and final Text lines. The second section was entered the same way. The bottom portion was entered as just Header length and first line. That is rather long-winded if you have many pages but no great trouble for small documents. It would have been simpler, for this short piece of text, to forget about columns and type straight across the screen, secure in the knowledge that alignment would be correct, but I thought that would not have been the best way of demonstrating what can be done in text<sup>87</sup>. That approach would have made the screen presentation much more realistic.

Preparation of the text took about the same time as with The Editor and the same number of trial prints were needed. Both time and prints would have been less but for lack of forethought. If there had been more similar pages, the time taken with text<sup>87</sup> would have been appreciably less than with either The Editor or Quill. The screen dump shows no serious alignment problem; minor adjustments had to be made to the start-points of the three separate lines “design 90”, “Nipissing” and “Integratable Luxury Class.” Do not forget to use Hard Spaces where a block of text starts with a blank line which has to be ‘printed’. Put Markers where each piece of column text ends and add a blank line at the bottom, because the print command insists on being told what Text lines there are after a Header.

For comparison, a second document was prepared using the graphics printer driver. The screen dump then looks the same as the printout. The supplied fonts do not include those built into the printer, so one cannot reproduce the results obtained from Quill in this way but you have a much wider choice of fonts available. Using founded<sup>89</sup>, you can create new fonts or enhance existing ones. Once you have set up macros for the fonts to be used – ALTKEY offers a wide range of macros – changing fonts is a quick job and documents of the type used here can be prepared more quickly than by the “conventional” method. Printing is slower but you need few, if any, trial prints, making the overall production process faster.

The sample illustrated was basically

correct when printed first time; only failure to set the line spacing wide enough to allow for the tall fonts used in the final column caused a reprint to be necessary. One big advantage of the graphics driver is the very large fonts which can be used; the tallest supplied is 72 pixels high, which is one inch. As the fonts are designed full size, you do not get the exaggerated jaggedness apparent when small fonts are blown up for printing.

To show that actual pictures can be included in text<sup>87</sup> output the sample of graphics printing incorporates copies of a simple sketch, captured from the screen with the SBYTES command from a picture created with the graphics program Artice. The graphics file is effectively mapped on to a number of characters in a font; when you type a character of this font, the corresponding part of the picture is put on to the screen. It is an unusual concept but effective.

You need the founded<sup>89</sup> program to transfer the picture file to a font. There is no facility in text<sup>87</sup> or its associated programs for editing such pictures, so all your thinking should be done when creating the images with the graphics program.

It is important to consider the line spacing of the text when setting the size of graphics characters, or mismatches may occur when text and graphics are mixed. There may also be a lack of WYSIWYG; with the Video Scale set at my usual 72, the three horizontal slices of the sketch lined up but they printed-out of line in places.

Changing the Video Scale to 90 revealed the misalignments as shown on the print and enabled corrections to be made. Slight vertical mis-registration of the three rows of characters making up the sketch on-screen did not appear in the print. The ability to put pictures into text<sup>87</sup> documents is a fairly limited one; you cannot chop a compressed Eye-Q screen into bits. founded<sup>89</sup> expects graphics files to be in a straightforward format – e.g., one created by the SBYTES command in SuperBasic. Trying to grab a screen in Eye-Q this way, using an ALTKEY macro to initiate a screen dump to a file, failed because Eye-Q spotted the ALT key and performed the command it thought appropriate, which was far from being SBYTES. Employing some imagination could produce much more impressive results. You could use Desktop Publisher

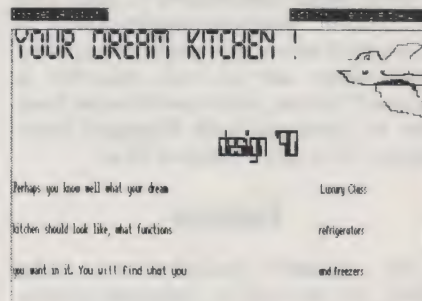


Figure 2. text<sup>87</sup> screen dump.



or *Front Page Extra* for DTP but I found both very cumbersome to use and lacking in editing facilities. I would much rather use *The Editor* or even *Quill* unless the need for non-printer fonts and pictures makes a DTP program essential. *Professional Publisher* is much better. The text editing facilities in the program are not so good as those of *The Editor*, so it is desirable to have that program as well and prepare text with it for importing into *Professional Publisher*.

As with text<sup>87</sup>, the fonts provided with the program are not the same as those in the printer; the selection of fonts supplied is so large that I have not checked them all yet. Sample print-out was made using fonts having very rough similarity, wherever possible, to the printer fonts. It would be helpful to be supplied with samples of each font, together with size details, as is provided in the text<sup>87</sup> manual. As there are no problems getting text aligned you can concentrate on choosing fonts and enhancements.

Partly because of the much greater range of possibilities a DTP program provides than a WP program, navigation round the menu structure tends to be relatively slower; if it were not for the number of menu operations required producing the *Professional Publisher* print would have been a quick matter. It was done using direct typing of the text in the Font Mode, rather than loading text from *The Editor* into prepared boxes; for such a small sample this was probably the quickest method but, for larger and more complicated documents, it would be better to get the text sorted out in *The Editor* or *Quill*, then load it into *Professional Publisher*.

Inserting the Eye-Q picture – actually two separated sections from one screen – was easy but you need a reasonable eye for size when chopping up a full screen picture to put portions of it between text. For those with a horror of having to customise printer drivers, the driver in this program proved to be very co-operative; no setting-up was required for the Epson-compatible Kaga-Taxan printer.

Print quality is controllable to some extent by the option to have the printhead make one to five passes for each slice of the page. More passes can smooth some of the jagged edges on characters and fill-in the slices which tend to be missed on one-

pass graphics printing. When graphics are essential in documents there is little choice for the QL but to use a genuine DTP program and *Professional Publisher* is the obvious one.

The wonderful pictures presented in PC advertising may make you think that the only way to get good DTP-type output is through a PC and one of the expensive programs sold for it. For comparison, I prepared the same sample text using

does not show actual font styles it is accurate enough for most purposes.

The flexibility in setting-up different column sizes, numbers and margins in a page is a distinct plus over the QL programs – the results per pound for the QL and its programs appear much higher for this type of layout. Operator input is so slow in such work that computer speed is of little consequence; using *Lightning* to improve speed of display is desirable,

particularly with DTP programs, where there is plenty of heavy processing and screen display work.

At the simple level illustrated, you can use any of the four common programs mentioned. If you are very fluent with *Quill* and can modify the printer driver to suit the printout required you may be as fast at producing this kind of mixed-font text as you would be with the other programs with their more complicated command structure. *The Editor* requires a similar expenditure of time to *Quill*

but is a much more capable program in general and tends to come into its own the longer the document and the more complex the layout. You do have to get involved with *The Editor* and its printer driver program in a way not necessary with *Quill*. That is a comment which applies at least as much to text<sup>87</sup> and *Professional Publisher*.

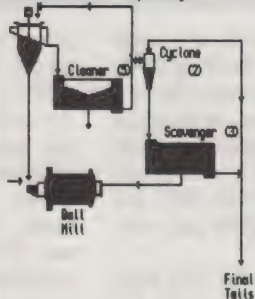
You just come and go with these programs – they require many hours of intensive practice and reading of the instructions to yield the best results. While both *The Editor* and text<sup>87</sup> have a mnemonic command structure which is not too far separated from that of *Quill* in concept, *Professional Publisher* has an appreciably different menu set-up which tends to take more time to use until you are familiar with it. This is a case where macros might be really useful to reduce some of the menu fingerwork. If you have concluded that the basic fonts installed in your printer are not sufficient for your jobs you have to look at text<sup>87</sup> and *Professional Publisher* and, once you decide anything but fairly simple manipulation of graphics is essential, you are really down to just the latter program as the one needed.

The intent here is not to make a choice between programs but merely to point out that all of them are usable for multi-featured text and to give some idea of how far you can go with each of them.

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Figure 3. *Professional Publisher*, a four-pass print-out.

*WordPerfect 5.0* on a PC/AT – £1,500-£3,000 for the machine, £210-£250 for the program; an up-to-date program version, received in August, with a fast computer and EGA screen. I will not go over the agonies and days spent customising the printer driver to work with my Kaga-Taxan. The same printer was used and the print looked much the same as from *Quill*. It took noticeably less time to prepare and there were no trial prints.

## Errors

Overall, the time and effort involved were significantly less but the result was no better. There were some minor alignment errors which did not occur with *Quill* but which occurred with text<sup>87</sup>, to a lesser extent. Screen presentation was also interesting; the basic editing screen showed text in the incorrect positions, but not all over the place as was the case with *Quill* and *The Editor*.

The idea of WYSIWYG in a PC WP program is to change the colour of the text and background; you are lucky if even underlining is displayed, let alone italics and, almost certainly, different sizes are not shown. On the other hand the Print Preview screen, which has to be called-up separately, shows accurately where text will appear, what size it will be and what the enhancements are. While the preview



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## Program of the month

## TURTLE GRAPHICS by Rudi Stouffs

**T**his utility expands/illustrates the turtle graphics on the QL. A disadvantage with turtle graphics on the QL is that you do not see where you are unless you draw a line. When using this utility, the position is pointed out by a real turtle with its head in the direction of the pen.

It is conceived as a utility and not a program, so all Basic keywords can be used in conjunction and it is easy to expand in Basic. The following commands are added:

## SHOWTURTLE &amp; HIDE-TURTLE

The error 'Not Complete' is returned if f/i SHOWTURTLE is used and the turtle was

already visible.

## STATUS

returns 1 if showturtle is 'on'.

FORWARD & BACK step  
LEFT & RIGHT angle  
SETHEADER (angle (absolute))  
HEADING

returns the absolute angle.

SETPOS x,y

sets the position absolute.

XCOR & YCOR

returns the position.

SETCOLOUR colour  
EDGE boolean

These commands are compatible with the existing turtle commands, apart from the turtle which will stay on its place until one of the new commands is used. The commands PENUP and PENDOWN are not duplicated; they just continue working.

The step used by the commands FORWARD & BACK is defined by the command SCALE as normal. The angle, defined in degrees, differs from the QL standard with 90 degrees; an angle of zero means right up.

As the turtle is developed for MODE 4 — graphics mode — the SETCOLOUR command can be used to give the turtle one of the four possible colours. The colour on-screen depends also on the paper

colour as the turtle is 'XOR'-ed on the screen.

With EDGE you define if the turtle may or may not leave the window, which is Basic-window #1. A value of one means that the turtle stays inside the window, unless it was already outside when the command was used. If so, this command becomes active from the moment the turtle enters the window. The turtle is invisible if it is outside the window; only the part (if one) inside the window can be visible.

To use these commands you need to type-in only the following lines:

```
turtle=RESPR(1760)
LBYTES
mdv2__Turtle_obj,turtle
CALL turtle
NEW
```

```
100 CLS
110 RESTORE
120 start=RESPR(1760): address=start
130 FOR n=500 TO 935 STEP 5
140 total=0
150 FOR q=1 TO 10
160 READ t: POKE_W address,t
170 total=total+t: address=address+2
180 END FOR q
190 READ check: IF check<>total THEN
  PRINT 'ERROR IN LINE:'!n: STOP
200 END FOR n
210 SBYTES mdv2_Turtle_obj,start,1760
500 DATA 13432, 272,17402, 4,20178,
  10, 198, 2643,18511,22356, 95006
505 DATA 21842,21580,17664, 282, 2632,
  18756,17748,21842,21580,17664,161590
510 DATA 456, 1862,20306,22337,21060,
  452, 1090,16707,19200, 648,104118
515 DATA 1100,17734,21504, 648, 1362,
  18759,18516, 720, 2387,17748,100478
520 DATA 18501,16708,17746, 768, 2387,
  17748,17231,19535,21842, 782,133248
525 DATA 1619,17748,20559,21248, 882,
  1093,17479,17664, 0, 4, 98296
530 DATA 886, 1864,17729,17481,20039,
  930, 1112,17231,20992, 926, 99190
535 DATA 1113,17231,20992, 960, 1619,
  21569,21589,21248, 0,13432,119753
540 DATA 284,28674,20114,12854,38912,
  21641,58185,33532, 45, 577,214818
545 DATA 15,49916, 24,14657, 6,
  20085,11593, 88,29248,13432,139064
550 DATA 282,20114, 8814, 88,20085,
  18938, 1150,18988, 0,26112,114571
555 DATA 84, 6524, 1, 0,31784,
  56494, 48,25044,37884, 0,157863
560 DATA 24,28672,11648,38932,11648,
  38928,11648,38924,11702,26628,218754
565 DATA 38918,15798,26632,38922,11702,
  26634,38912,15798,26638,38916,278870
570 DATA 24878,23945,15798,26640,38912,
  11702,26642,38914,24832,65396,297659
575 DATA 24576, 842,28927,20085,18938,
  1052,18988, 0,26610,24832,164850
```



580 DATA 824,16940, 0,20085, 8310, 26624,54222,30463,28726,20035,206229  
585 DATA 8814, 88, 8200,49404, 4, 9340, 2,32768, 9834, 120,118574  
590 DATA 9331, 0,28672,30720,29191, 29712,24832, 66,18944,26122,197590  
595 DATA 21642,29190,29708,24884,21898, 18988, 13,26376,18944,26150,217793  
600 DATA 19076,26146,12842, 34,53866, 24,14657, 2,13354, 36,140037  
605 DATA 54378, 26,14658, 4, 6464, 12,10564, 8,28672,20085,134871  
610 DATA 9729,38506, 34,24842, 9729, 54890, 34,38506, 28,57740,234038  
615 DATA 19011,27622,34754,26118,18499, 6147,20085,28673, 9759,20085,210753  
620 DATA 13432, 276,20114,26118,28913, 3139, 1,20085,25070,26382,163530  
625 DATA 20085,25064,26356,28692,13432, 284,20114,31784,56494, 48,222353  
630 DATA 24832,65206,32256,10313,23692, 23945,11702,26640,38912,15798,273296  
635 DATA 26644,38916,23945,15804, 2045, 38912,11708, 4575,18082,38914,219545  
640 DATA 28686,13432, 284,20114,13432, 286,18426, 116,20114,18426,133316  
645 DATA 115,20114,18663, 64,11702, 26628,38924,11702,26632,38928,193472  
650 DATA 11702,26636,38932,28672,29698, 22921,11648,38912,20938,65528,295587  
655 DATA 23948,18426, 76,20114,23692, 20114,24832, 510,24832,65226,221770  
660 DATA 19679, 512,26112, 498,11702, 38912,26628,11702,38916,26632,201293  
665 DATA 11702,38920,26636,18998,26646, 26368, 472, 8310,26624,54222,238898  
670 DATA 30463,28721,20035,24576, 456, 5656,64014, 244,6906,3584,184655  
675 DATA 64238, 2582,61184,24832,65308, 26384,20085,24832,65300,26360,381105  
680 DATA 28692,13432, 284,20114,31784, 56494, 48,23945,15798,26640,217231  
685 DATA 38912,11702,26642,38914,13432, 284,28682,20114,15798,38912,233392  
690 DATA 26640,11702,38914,26642,18938, 592,18988, 0,26116,23689,192221  
695 DATA 20085,24832, 360,24832,64906, 24576, 352,24832,65220,26348,276343  
700 DATA 31784,56494, 48,21897,15804, 90,38912,13432, 284,28680,207425  
705 DATA 20114,24760,13432, 274,20114, 26130,28913,3139, 1,26122,162999  
710 DATA 12854,38912, 577, 7,20085, 8735,20085,25056,18599,16384,161294  
715 DATA 24832, 282,19615, 2,18938, 492, 6465, 1,24576, 266, 95469  
720 DATA 13432, 276,20114,26332,28913, 3139, 2,26324,24832,64830,208194  
725 DATA 31784,56494, 48,18663, 64, 28672,10313,55804, 0, 12,201854  
730 DATA 29698,22921,11648,38912,20938, 65528,28922,13432, 284,20114,252397  
735 DATA 23948,28922,20114,24832, 196, 24832,64912,19679, 512,26112,234059  
740 DATA 184,15798,38912,26634,11702, 38914,26636,15798,38918,26628,240124  
745 DATA 11702,38920,26630,24576, 156, 24832,65368,18938, 366, 6465,217953  
750 DATA 13,28672,20085,29202,13432, 282,20114, 8814, 88,31784,152486  
755 DATA 56494, 48,20873,15798,26640, 38914,11702,26642,38916,15804,251831  
760 DATA 90,38912,13432, 284,28680, 20114,28684,20114,30722,24652,205684  
765 DATA 31754,24578,31748,29196,13432, 282,20114, 8814, 88, 1670,161676  
770 DATA 0, 40,56494, 48,23945, 15798,26624,38912,11702,26626,200189  
775 DATA 38914,30722,24606,29192,13432, 282,20114, 8814, 88,18938,185102  
780 DATA 242,28672, 4140, 0,21897, 15744,38912,30723,11593, 88,152011  
785 DATA 28672,20085,18663, 512,18938, 212,18988, 0,26606,18988,151664  
790 DATA 12,26344,12844, 2,13356, 4,23874,24385,16890, 198,117909  
795 DATA 30208,13868, 6,53699,12289, 58441, 577,65534,61258, 9340,305220  
800 DATA 0, 0,13377,54466,54780, 2, 0, 640, 0, 7,123272  
805 DATA 29192,37504,29696, 5164, 10, 58186,53698,60746,54722,29708,358626  
810 DATA 37932, 10, 1026, 1,46124, 11,27946, 5676, 8, 7212,125946  
815 DATA 9, 1030, 8,27138,31744, 24864,21642, 1027, 8,27138,134608  
820 DATA 30208, 7212, 9,24848,54780, 0, 126,24780,28672,19679,190314  
825 DATA 64,20085, 6168,59180,58924, 60460,60716, 6660, 2092, 2,274351  
830 DATA 1,26114,16900,57676, 2092, 1, 1,26370, 6149,14852,150156  
835 DATA 57453, 6660,57389,18501,14852, 16901,58221, 6660,58157,48018,342812  
840 DATA 20085, 7, 0, 0, 0, 0, 0, 0, 5008, 25100  
845 DATA 7280, 4116, 8210,57362, 8210, 4116, 7280, 5008, 0, 0,101582  
850 DATA 64, 960,19564,12306, 4106, 8204,24592,61464, 3172, 1920,136352  
855 DATA 1024, 0, 536, 996, 3108, 4120, 8200,57358, 8200, 4112, 87654  
860 DATA 6240,10112, 128, 0, 4320, 2832, 3296, 4112, 8206, 8200, 47446  
865 DATA 57352, 4112, 2144, 4000, 2064, 0, 896, 1088,16376, 4112, 92144  
870 DATA 8200, 8200, 8200, 4112,15480, 896, 256, 0, 3600, 4512, 53456  
875 DATA 3680, 4112,57352, 8200, 8206, 4112, 3104, 3040, 4128, 0, 95934  
880 DATA 12416,20352,18528,12304, 8200, 57358, 8200, 4112, 3120, 968,145558  
885 DATA 512, 0, 1024, 1920,27748, 40984,40976,24584, 4108,12318,154174  
890 DATA 19552, 960, 64, 0, 0, 5008, 7280,20496,36872,36878,127110  
895 DATA 36872,20496, 7280, 5008, 0, 0, 64, 960,19552,12318,102550  
900 DATA 4108,24584,40976,36888,27748, 1920, 1024, 0, 512, 968,138728  
905 DATA 3120, 4112, 8200,57358, 8200, 12304,18528,20352,12416, 0,144590



```

910 DATA 4128, 3040, 3104, 4112, 8206,
      8200, 57352, 4112, 3680, 4512, 100446
915 DATA 3600, 0, 256, 896, 15480,
      4112, 8200, 8200, 8200, 4112, 53056
920 DATA 16376, 1088, 896, 0, 2064,
      4000, 2144, 4112, 57352, 8200, 96232
925 DATA 8206, 4112, 3296, 2832, 4320,
      0, 128, 10112, 6240, 4112, 43358
930 DATA 8200, 57358, 8200, 4120, 3108,
      996, 536, 0, 1024, 1920, 85462
935 DATA 6244, 61464, 24592, 8204, 4106,
      12306, 18540, 960, 64, 0, 136480

```

```

STAT EQU 0
COLOUR EQU 1
X EQU 2
Y EQU 4
SHAPE EQU 6
XL_OUT EQU 8
XR_OUT EQU 9
YT_OUT EQU 10
YB_OUT EQU 11
OUT EQU 12
EDGE EQU 13
*
      MOVE.W $110,A2 * BP.INIT
      LEA.L PC_DEF(PC),A1
      JMP (A2)
*
PC_DEF DC.W 10
      DC.W ST-*
      DC.B 10,'SHOWTURTLE',0
      DC.W HT-*
      DC.B 10,'HIDETURTLE',0
      DC.W FD-*
      DC.B 7,'FORWARD'
      DC.W BK-*
      DC.B 4,'BACK',0
      DC.W LT-*
      DC.B 4,'LEFT',0
      DC.W RT-*
      DC.B 5,'RIGHT'
      DC.W SH-*
      DC.B 9,'SETHEADER'
      DC.W SC-*
      DC.B 9,'SETCOLOUR'
      DC.W SP-*
      DC.B 6,'SETPOS',0
      DC.W ED-*
      DC.B 4,'EDGE',0
      DC.W 0,4
      DC.W HE-*
      DC.B 7,'HEADING'
      DC.W XC-*
      DC.B 4,'XCOR',0
      DC.W YC-*
      DC.B 4,'YCOR',0
      DC.W SA-*
      DC.B 6,'STATUS',0
      DC.W 0
* find shape-number
* RI-stack: angle
SHAPE_NO MOVE.W $11C,A2
      MOVEQ #2,D0 * RI.NINT
      JSR (A2)
      MOVE.W 0(A6,A1.L),D1
      ADDQ.L #2,A1
      LSL.W #1,D1
      DIVU.W #45,D1 * shapenumber=
      ANDI.W #15,D1 * angle/22.5
      MULU.W #24,D1
      MOVE.W D1,SHAPE(A4)
      RTS
*
CHRIX MOVE.L A1,$58(A6)
      MOVEQ #320,D1
      MOVE.W $11A,A2 * BV.CHRIX
      JSR (A2)
      MOVE.L $58(A6),A1
      RTS
*
* showturtle & hideturtle
*

```

```

ST LEA.L TURTLE(PC),A4
  TST.B STAT(A4)
  BNE ERR_NC
  MOVE.B #1,STAT(A4)
  MOVEQ #$28,D6
  ADD.L $30(A6),D6 * SB-channel_def
  BSR.S CHRIX
* RI: 0,0,ypos,xpos
  SUBA.L #24,A1
  MOVEQ #0,D0
  MOVE.L D0,20(A6,A1.L)
  MOVE.L D0,16(A6,A1.L)
  MOVE.L D0,12(A6,A1.L)
  MOVE.L 4(A6,D6.L),6(A6,A1.L)
  MOVE.W 8(A6,D6.L),10(A6,A1.L)
  MOVE.L 10(A6,D6.L),0(A6,A1.L)
  MOVE.W 14(A6,D6.L),4(A6,A1.L)
  BSR.S DOT_PIX
* RI: angle
  SUBQ.L #6,A1
  MOVE.W 16(A6,D6.L),0(A6,A1.L)
  MOVE.L 18(A6,D6.L),2(A6,A1.L)
  BSR SHAPE_NO
  BRA SHOW
*
ERR_NC MOVEQ #-1,D0 * not complete
      RTS
*
HT LEA.L TURTLE(PC),A4
  TST.B STAT(A4)
  BEQ.S ERR_NC
  BSR SHOW
  CLR.B STAT(A4)
  RTS
* graphic to pixel-coord conversion routine
* on RI-stack: 0,0,y,x
DOT_PIX MOVEA.L 0(A6,D6.L),A0
      ADDA.L A6,A1
      MOVEQ #-1,D3
      MOVEQ #$36,D0 * SD.GCUR
      TRAP #3
      MOVE.L $58(A6),A1
      MOVE.L A0,D0 * window-block-def
      MULU.W #4,D0
      MOVEA.L #$28000,A2
      MOVEA.L $78(A2),A3
      MOVEA.L 0(A3,D0.W),A2
      MOVEQ #0,D0 * calculate x-out
      MOVEQ #0,D4
      MOVEQ #7,D1
      MOVEQ #16,D2
      BSR CALC_OUT
      TST.B D0
      BNE.S IF_EDGE
      ADDQ.L #2,A2
      MOVEQ #6,D1 * calculate y-out
      MOVEQ #12,D2
      BSR CALC_OUT
      SUBQ.L #2,A2
IF_EDGE TST.B EDGE(A4)
      BEQ.S NEW_POS
      TST.B D0
      BNE.S DP_X
      TST.L D4
      BNE.S DP_X
NEW_POS MOVE.W $22(A2),D1 * xpos
      ADD.W $18(A2),D1 * xmin
      MOVE.W D1,X(A4)
      MOVE.W $24(A2),D2 * ypos
      ADD.W $1A(A2),D2 * ymin
      MOVE.W D2,Y(A4)
      MOVE.B D0,OUT(A4)
      MOVE.L D4,XL_OUT(A4)
      MOVEQ #0,D0
      DP_X RTS
*
CALC_OUT MOVE.L D1,D3
      SUB.W $22(A2),D3 * position
      BSR.S IF_OUT
      MOVE.L D1,D3
      ADD.W $22(A2),D3
      SUB.W $1C(A2),D3 * size
*
IF_OUT LSL.L #8,D4
      TST.W D3
      BMI.S DP_X * in
      DIVS.W D2,D3
      BNE.S PLUS
      SWAP D3 * in/out
      MOVE.B D3,D4

```



```

RTS
PLUS MOVEQ #1,D0 * out
      MOVE.L (A7)+,D3
      RTS
*
* forward & back
*
ONE_PAR MOVE.W $114,A2 * CA.GTFP
      JSR (A2)
      BNE.S PAR_X
      MOVEQ #-15,D0 * bad parameter
      CMPI.W #1,D3
PAR_X RTS
*
FD BSR.S ONE_PAR
   BEQ.S MOVE
   RTS
*
BK BSR.S ONE_PAR
   BNE.S PAR_X
   MOVEQ #$14,D0 * RI.NEG
   MOVE.W $11C,A2
   JSR (A2)
*
* move routine
MOVE MOVEQ #$28,D6
      ADD.L $30(A6),D6
      BSR CHRIX
* RI: distance,angle
      MOVEQ #0,D7
      MOVEA.L A1,A4
      ADDQ.L #6,A4
      SUBQ.L #6,A1
      MOVE.L 16(A6,D6.L),0(A6,A1.L)
      MOVE.W 20(A6,D6.L),4(A6,A1.L)
* RI: --,angle*PI/180
      SUBQ.L #6,A1
      MOVE.W #$7FD,0(A6,A1.L)
      MOVE.L #$11DF46A2,2(A6,A1.L)
      MOVEQ #$E,D0
      MOVE.W $11C,A2
      JSR (A2)
* RI: --,xdis,ydis
      MOVE.W $11E,A2
      LEA.L XDIST(PC),A3
      JSR (A2)
      LEA.L YDIST(PC),A3
      JSR (A2)
      MOVEM.L A1,-(A7)
* RI: xold,yold,--,0,0
      MOVE.L 4(A6,D6.L),12(A6,A1.L)
      MOVE.L 8(A6,D6.L),16(A6,A1.L)
      MOVE.L 12(A6,D6.L),20(A6,A1.L)
      MOVEQ #0,D0
      MOVEQ #2,D2
      SETO SUBQ.L #4,A1
           MOVE.L D0,0(A6,A1.L)
           DBF D2,SETO
* RI: --,xnew,ynew,0,0,ynew,xnew
      SUBQ.L #6,A4
      LEA.L POS(PC),A3
      JSR (A2)
      ADDQ.L #6,A4
      JSR (A2)
*
      BSR SHOW
      BSR DOT_PIX
      MOVEM.L (A7)+,A1
      BNE SHOW * edge & out
      MOVE.L 0(A6,A1.L),4(A6,D6.L)
      MOVE.L 4(A6,A1.L),8(A6,D6.L)
      MOVE.L 8(A6,A1.L),12(A6,D6.L)
      TST.B $16(A6,D6.L) * pen status
      BEQ SHOW
      MOVEA.L 0(A6,D6.L),A0
      ADDA.L A6,A1
      MOVEQ #-1,D3
      MOVEQ #$31,D0 * SD.LINE
      TRAP #3
      BRA SHOW
*
XDIST DC.B $16,$18,-6,$E,0
YDIST DC.B -12,$1A,-6,$E,0
POS DC.B -6,-18,$A,$16,-17,0
*
* left & right
*
LT BSR ONE_PAR
   BEQ.S TURN
LTX RTS
*

```

```

RT BSR ONE_PAR
   BNE.S LTX
   MOVEQ #$14,D0 * RI.NEG
   MOVE.W $11C,A2
   JSR (A2)
* turn routine
* angle on RI as fp
TURN MOVEQ #$28,D6
      ADD.L $30(A6),D6
      SUBQ.L #6,A1 * old-angle
      MOVE.W 16(A6,D6.L),0(A6,A1.L)
      MOVE.L 18(A6,D6.L),2(A6,A1.L)
      MOVE.W $11C,A2
NEW_ANG MOVEQ #$A,D0 * RI.ADD
        JSR (A2)
        MOVE.W 0(A6,A1.L),16(A6,D6.L)
        MOVE.L 2(A6,A1.L),18(A6,D6.L)
        LEA.L TURTLE(PC),A4
        TST.B STAT(A4)
        BNE.S SHOW_ON
        ADDQ.L #6,A1
SHX RTS
SHOW_ON BSR SHOW
        BSR SHAPE_NO
        BRA SHOW
*
* setheader, setcolour, setpos & edge
*
SH BSR ONE_PAR * angle
   BNE.S SHX
   MOVEQ #$28,D6
   ADD.L $30(A6),D6
   SUBQ.L #2,A1
   MOVE.W #90,0(A6,A1.L)
   MOVE.W $11C,A2
   MOVEQ #8,D0 * RI.FLOAT
   JSR (A2)
   BRA NEW_ANG * add and set
*
COMM2 MOVE.W $112,A2 * CA.GTINT
      JSR (A2)
      BNE.S C2X
      MOVEQ #-15,D0 * bad parameter
      CMPI.W #1,D3
      BNE.S C2X
      MOVE.W 0(A6,A1.L),D1
      ANDI.W #7,D1
      RTS
C2X MOVE.L (A7)+,D1
SPX RTS
*
SC BSR.S COMM2 * colour
   MOVEM.W D1,-(A7)
   BSR SHOW
   MOVEM.W (A7)+,D1
   LEA.L TURTLE(PC),A4
   MOVE.B D1,COLOUR(A4)
   BRA SHOW
SP MOVE.W $114,A2 * CA.GTFP x.y
   JSR (A2)
   BNE.S SPX
   MOVEQ #-15,D0 * bad parameter
   CMPI.W #2,D3
   BNE.S SPX
   BSR CHRIX
   MOVEQ #$28,D6
   ADD.L $30(A6),D6
* RI: y.x,0,0,y.x
   MOVEM.L A1,-(A7)
   MOVEQ #0,D0
   MOVE.L A1,A4
   ADDA.L #12,A4
   MOVEQ #2,D2
   SUBQ.L #4,A1
   MOVE.L D0,0(A6,A1.L)
   DBF D2,PUTO
   MOVEQ #-6,D0
   MOVE.W $11C,A2
   JSR (A2)
   SUBQ.L #6,A4
   MOVEQ #-6,D0
   JSR (A2)
   BSR SHOW
   BSR DOT_PIX
   MOVEM.L (A7)+,A1
   BNE SHOW
* new_pos
   MOVE.W 0(A6,A1.L),10(A6,D6.L)
   MOVE.L 2(A6,A1.L),12(A6,D6.L)
   MOVE.W 6(A6,A1.L),4(A6,D6.L)
   MOVE.L 8(A6,A1.L),6(A6,D6.L)

```



```

*      BRA      SHOW
ID      BSR      COMM2
      LEA.L     TURTLE(PC),A4
      MOVE.B    D1,EDGE(A4)
      MOVEQ     #0,D0
      RTS

* heading, xcor, ycor & status
*
HE      MOVEQ     #18,D1
      MOVE.W    $11A,A2      * BV.CHRIX
      JSR      (A2)
      MOVE.L     $58(A6),A1
      MOVEQ     #$28,D6
      ADD.L      $30(A6),D6
      SUBQ.L     #8,A1      * angle
      MOVE.W    16(A6,D6.L),2(A6,A1.L)
      MOVE.L     18(A6,D6.L),4(A6,A1.L)
      MOVE.W    #90,0(A6,A1.L)
      MOVE.W    $11C,A2
      MOVEQ     #8,D0      * RI.FLOAT
      JSR      (A2)
      MOVEQ     #$C,D0      * RI.SUB
      JSR      (A2)
      MOVEQ     #2,D4      * RET.FP
      BRA.S     RETURN

*
XC      MOVEQ     #10,D6
      BRA.S     COMM
YC      MOVEQ     #4,D6
COMM    MOVEQ     #12,D1
      MOVE.W    $11A,A2      * BV.CHRIX
      JSR      (A2)
      MOVE.L     $58(A6),A1
      ADDI.L     #$28,D6
      ADD.L      $30(A6),D6
      SUBQ.L     #6,A1
      MOVE.W    0(A6,D6.L),0(A6,A1.L)
      MOVE.L     2(A6,D6.L),2(A6,A1.L)
      MOVEQ     #2,D4      * RET.FP
      BRA.S     RETURN

*
SA      MOVEQ     #8,D1
      MOVE.W    $11A,A2      * BV.CHRIX
      JSR      (A2)
      MOVE.L     $58(A6),A1
      LEA.L     TURTLE(PC),A4
      MOVEQ     #0,D0
      MOVE.B     STAT(A4),D0
      SUBQ.L     #2,A1
      MOVE.W    D0,0(A6,A1.L)
      MOVEQ     #3,D4      * RET.INT
      MOVE.L     A1,$58(A6)
      MOVEQ     #0,D0
      RETURN
EXIT    RTS

*
* show routine
SHOW    MOVEM.L   D6,-(A7)
      LEA.L     TURTLE(PC),A4
      TST.B     STAT(A4)
      BEQ.S     EXIT
      TST.B     OUT(A4)
      BNE.S     EXIT
      MOVE.W    X(A4),D1      * x
      MOVE.W    Y(A4),D2      * y
      SUBQ.W    #6,D2
      SUBQ.W    #7,D1
      LEA.L     SHAPES(PC),A0
      MOVEQ     #0,D3
      MOVE.W    SHAPE(A4),D3
      ADDA.L     D3,A0      * shape
* pixel address finding routine
      MOVE.W    D1,D0
      LSR.W     #2,D1
      ANDI.W    #-2,D1
      LSL.W     #7,D2
      MOVEA.L   #0,A2
      MOVEA.W   D1,A2
      ADDA.W    D2,A2
      ADDA.L    #131072,A2      * address
      ANDI.L    #7,D0      * bit number
      MOVEQ     #8,D1
      SUB.L     D0,D1

      MOVEQ     #0,D2      * check y-top
      MOVE.B    YT_OUT(A4),D2
      LSL.W     #1,D2
      ADDA.L    D2,A0
      LSL.W     #6,D2
      ADDA.L    D2,A2

```

```

      MOVEQ     #12,D2      * loop-D2
      SUB.B     YT_OUT(A4),D2
Y_LOOP SUBI.B     #1,D2
      CMP.B     YB_OUT(A4),D2
      BLT.S     SH_EXIT      * check Y-bottom
      MOVE.B    XL_OUT(A4),D3
      MOVE.B    XR_OUT(A4),D6
      SUBI.B    #8,D6
      BPL.S     TOP1
      MOVEQ     #0,D6
      BSR.S     PRINT
      ADDQ.L     #2,A2
      SUBI.B     #8,D3
      BPL.S     TOP2
      MOVEQ     #0,D3
      MOVE.B     XR_OUT(A4),D6
      BSR.S     PRINT
      ADDA.L     #126,A2
      BRA      Y_LOOP
SH_EXIT MOVEQ     #0,D0
      MOVEM.L   (A7)+,D6
      RTS

* print routine
PRINT  MOVE.B     (A0)+,D4
      LSL.B     D3,D4      * check x-left
      LSR.B     D3,D4
      LSR.B     D6,D4      * check y-right
      LSL.B     D6,D4
      MOVE.B     D4,D5
      BTST.B     #2,COLOUR(A4)
      BNE.S     GREEN      * check colour
      CLR.B     D4
GREEN  LSL.W     #8,D4
      BTST.B     #1,COLOUR(A4)
      BEQ.S     NOT_RED
      MOVE.B     D5,D4
NOT_RED MOVE.W    D4,D5      * D5: print.L
      LSR.W     D0,D5
      MOVE.B     D4,D5
      LSR.B     D0,D5
      SWAP      D5
      MOVE.W    D4,D5
      CLR.B     D5
      LSL.W     D1,D5
      MOVE.B     D4,D5
      LSL.B     D1,D5
      EOR.L     D5,(A2)
      RTS

*
* data
*
TURTLE DC.B      0.7
      DS.B      12

SHAPES
* 0- 22.5- 45- 67.5-
      DC.B      0.0,19,144,28,112,16,20,32,18,224,18
      DC.B      32,18,16,20,28,112,19,144,0,0,0,0
      DC.B      0,64,3,192,76,108,48,18,16,10,32,12
      DC.B      96,16,240,24,12,100,7,128,4,0,0,0
      DC.B      2,24,3,228,12,36,16,24,32,8,224,14
      DC.B      32,8,16,16,24,96,39,128,0,128,0,0
      DC.B      16,224,11,16,12,224,16,16,32,14,32,8
      DC.B      224,8,16,16,8,96,15,160,8,16,0,0
* 90- 112.5- 135- 157.5-
      DC.B      3,128,4,64,63,248,16,16,32,8,32,8
      DC.B      32,8,16,16,60,120,3,128,1,0,0,0
      DC.B      14,16,17,160,14,96,16,16,224,8,32,8
      DC.B      32,14,16,16,12,32,11,224,16,32,0,0
      DC.B      48,128,79,128,72,96,48,16,32,8,224,14
      DC.B      32,8,16,16,12,48,3,200,2,0,0,0
      DC.B      4,0,7,128,108,100,160,24,160,16,96,8
      DC.B      16,12,48,30,76,96,3,192,0,64,0,0
* 180- 202.5- 225- 247.5-
      DC.B      0.0,19,144,28,112,80,16,144,8,144,14
      DC.B      144,8,80,16,28,112,19,144,0,0,0,0
      DC.B      0,64,3,192,76,96,48,30,16,12,96,8
      DC.B      160,16,144,24,108,100,7,128,4,0,0,0
      DC.B      2,0,3,200,12,48,16,16,32,8,224,14
      DC.B      32,8,48,16,72,96,79,128,48,128,0,0
      DC.B      16,32,11,224,12,32,16,16,32,14,32,8
      DC.B      224,8,16,16,14,96,17,160,14,16,0,0
* 270- 292.5- 315- 337.5-
      DC.B      1,0,3,128,60,120,16,16,32,8,32,8
      DC.B      32,8,16,16,63,248,4,64,3,128,0,0
      DC.B      8,16,15,160,8,96,16,16,224,8,32,8
      DC.B      32,14,16,16,12,224,11,16,16,224,0,0
      DC.B      0,128,39,128,24,96,16,16,32,8,224,14
      DC.B      32,8,16,24,12,36,3,228,2,24,0,0
      DC.B      4,0,7,128,24,100,240,24,96,16,32,12
      DC.B      16,10,48,18,72,108,3,192,0,64,0,0

```



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# MICRODRIVE

## KEY

B = SuperBasic; A + O = assembler and object code; M + B = machine code and Basic loader; A+B+O = assembler and Basic loader and object code; S = supercharged; L = QLiberated; f1 = monitor mode; f2 = TV mode

**1. DIY ASSEMBLER by Giles Todd (B)** £5  
A complete two-pass assembler which assembles all 68008 code and supports the directives DRG, END, EQU, DC and DS.

**2. MINI MONITOR by Richard Cross (A + O)** £3  
Multi-tasks on the QL using only 3K of RAM, Dump registers, memory and ASCII m/c trace, register store, memory move and store, and jumps. *QL User*, October 1985.

**4. GOLF by Shergold and Tose (Bf12)** £2  
Up to 50 courses varying difficulty with lakes, rivers, bunkers and trees. *QL User*, May, 1985.

**5. PALADIN by Williams and Holliday (A + O)** £5  
All-machine code space-invaders game used as the basis of the games programming series beginning in April 1985.

**8. FAMILY TREE by Andy Carmichael (B)** £3  
Archive database for assembling and displaying large family trees. *Theory of Relativity*, *QL User*, July/August 1985.

**9. COMPOSER by James Lucy (L)** £3  
Completed in *QL User*, October 1985, this QLiberated program allows you to compose, play and edit music, including tempo, staccato, legato and sharps.

**17. CAD QL by Tony Quinn (S)** £4  
The QL is particularly suited to CAD. Includes rubber banding and user-definable symbols. *QL World*, September 1988.

**19. STARPORT 2001 by Karl Jeffrey (M + B)** £3  
Galaxian-style arcade game with fast m/c entry. *QL World*, November 1986.

**24. DESIGN 3D by J.F. Tydeman (S)** £4  
3D screen designs with the minimum of fuss. *QL World*, March/April 1987.

**25. STELLARIS by D. Carmona (Bf1)** £4  
Real-time space adventure against the computer, including economic simulations, lunar landing and superb graphics. *QL World*, June 1987.

**29. BRIDGE by Peter Etheridge (B)** £4  
Excellent version including accurate bidding, automatic or manual card play, replay hands, save and load more.

**32. ADVENT2 by Phillip Sproston (B)** £4  
Arcade adventure with humour: rooms, robots and problems to keep you on your toes.

**34. QL CONVERSION/CALCULATOR (f2)** £2  
Weights and measures, conventions and reverse Polish, converts anything to anything. Menu-driven, easy to use.

**35. QWHIST by John Wakefield (B)** £3  
You play south and the computer plays north against automatic east west opponents. *QL World*, August 1987.

**36. MAIL MERGE by Stanley Sykes (Bf2)** £1  
Handy utilities providing mail merge and labeller for Quill files, plus a demo.

**37. THE DOUBLE by P.G. Ives (Bf2)** £4  
A large football strategy game. You manage a team through four divisions, buying and selling, boosting morale through the league and F.A. Cup season.

**45. SUPERBREAKOUT by R. Davidson (M + B)** £2  
Fast m/c version of the classic bat, ball and wall game. Optional double bats and or balls.

**52. SPACE PODS by Simon Quinn (M + B)** £3  
Your lone ship must protect six energy pods against the aliens. Machine code. *QL World*, December 1987.

**53. GRAPHIC WRITER by S.M. Walker (B)** £2  
A graphic design program which can save your pictures as SuperBasic commands for use in other programs. *QL World*, December 1987.

**54. ZAPMAN by L. Miles (M + B)** £3  
Fast-action m/c version of the Pacman genre. Variable skill levels and maze formats.

**55. ADVENTURE PLAYTIME by A. Pemberton (B)** £3  
An extensive adventure where you must complete tasks for the inhabitants of a strange land. Coded messages and hints included.

**56. SPACE INVADERS by Paul McKinnon (M)** £3  
Very fast, challenging version of the classic, with ugly aliens and protective shields.

**57. SPELLED by Timo Salmi (T)** £3  
A complete spelling checker for Quill — list files. 7,500 words automatically expandable. Required two cartridges and 512K expansion.

**58. RADAR by Nigel Ford (B)** £2  
You are control, monitoring the skies, checking aircraft, scrambling jets to intercept UFOs and shooting down enemy aircraft.

**59. DUNGEONS by Geoffrey Evelyn (B)** £4  
As wizard, superhero, megahero or elf you must explore the dungeons, fighting monsters and collecting treasure in this one- to four-player game. Needs two cartridges and an expanded QL.

**60. SPEEDMIND by William Henderson (B)** £3  
A mastermind-style game played with coloured pages. You have 12 attempts at breaking the code against the clock. *QL World*, January 1988.

**62. DOMINOES by Adrian Steen (Bf2)** £2  
1 version of the classic English dominoes to play against the computer. *QL World*, May 1988.

**63. VICIOUS VIPER by Ian Humphreys (B)** £3  
A version of the snake game in Basic. "Simple, frustrating, addictive, playable." *QL World*, July 1988.

**64. TAKTIX by Nigel Ford (B)** £3  
Six or more can play the computer in a fierce game of European conquest. Put aside at least an hour. *QL World*, July 1988.

**65. DUAL DOMINOES by Heimo Geske (B)** £4  
Two addictive versions of European dominoes with splendid graphics, to be played in mode 4 against the computer.

**66. FTIDY by Howard Clase (B)** £4  
"A very pleasant file handling front-end type program, very clear and simple to use" — *QL World* software editorial. Machine code data file handlers *Data-maker* and *Data-loader* are included in the package.

**67. LEAGUE SECRETARY by C.B. Storey (B)** £3  
You enter the match results and this program updates the league tables. Suitable for any sporting league organised on the lines of the Barclays Football League.

**68. TAB—EDITOR by Richard Williams (B, compiled)** £3  
A flexible text editor for easy entry and manipulation of listings. Includes simple movement through columns, full block copying, special SORT for tabular listings, and very flexible tabbing. "The author has taken a lot of trouble to get it right." Code available from author.

**69. WORDSEARCH by David Watson (B)** £3  
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# EXCHANGE

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**70. QTRON by Axel Berle (M + B)** £3  
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**71. CRITICAL MASS by Patrick Carter (B)** £4  
As numbers accumulate in close proximity to each other, they reach their critical mass and explode. Can you hold your position? "An original game which I enjoyed playing." *QL World*, December 1988.

**72. BOXES/FOX AND HOUNDS (B)** £4  
Two SuperBasic games for the festive season. Keep your family amused for hours, get hooked yourself. *QL World*, January 1989.

**73. MULTIPLICATION TABLES by Ron Allpress (B)** £3  
Ideal for teaching the next generation to memorise the multiplication tables, or revising your own. *QL World*, February 1989.

**74. GRAPH PLOTTER by John Banks (B)** £3  
Useful for visualising mathematical functions in two dimensional polar or cartesian coordinates. *QL World*, March 1989.

**75. BUSINESS GAME by David Smith (B)** £4  
A business simulator for any number of players, human or computer. The winner is the one who makes the most money! Networking capability available from author. See *QL World*, April 1989.

**76. BACKGROUND MUSIC** £4  
By J Russell/CARPET by G.V. Reynes  
The former generates music which will play behind another program; the latter generates patterns based on one-dimensional cellular automata. Lie back and relax. *QL World*, May 1989.

**77. FOOTBALL MANAGER by Chic James (B)** £3  
Guide your teams through the league competing against one another.

**78. CUBE by Dirk de Mal (B)** £3  
A 2D strategy game in the colour cube tradition — unscramble the cube into the correct colour sequence. "Entertaining and addictive" with graphics and music. *QL World*, July 1989.

**79. LINK 4 by Graham Creasy/BOING by Richard Green (B)** £4  
Line up four counters against an opponent or against the computer. Not as easy as it sounds. In Boing, a ball bounces to the force of user-definable gravity.

**80. MOLECULAR GRAPHICS by Mark Knight (M & B)** £4  
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**81. CONQUEST by Andrew Pritchard (T)** £4  
"Superb graphics with lots of original ideas. The best strategy game I've reviewed for *QL World*."

**82. WORDBLOK by Phillip Sproston** £3  
Simple to play, hard to win: do you know more words than the computer? Infuriating and addictive. *QL World* September 1989.

**83. 3D SKETCH PAD by A.D. McGregor** £3  
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**84. TEST MATCH by Chic James** £4  
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**85. GIRO by Henry Wrightson (B)** £3  
Rescue space-disaster victims in their escape pods, but remember you have no gravity. Increasing levels. *QL World* December 1989.

**86. TURBOCOPY by Timo Salmi (T)** £3  
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